APPENDIX C. WAVE TRANSFORMATIONAL NUMERICAL MODELING INFORMATION

C1. EXISTING CONDITIONS WAVE MODELING PLOTS

The following diagrams illustrate existing condition numerical wave transformation modeling results.

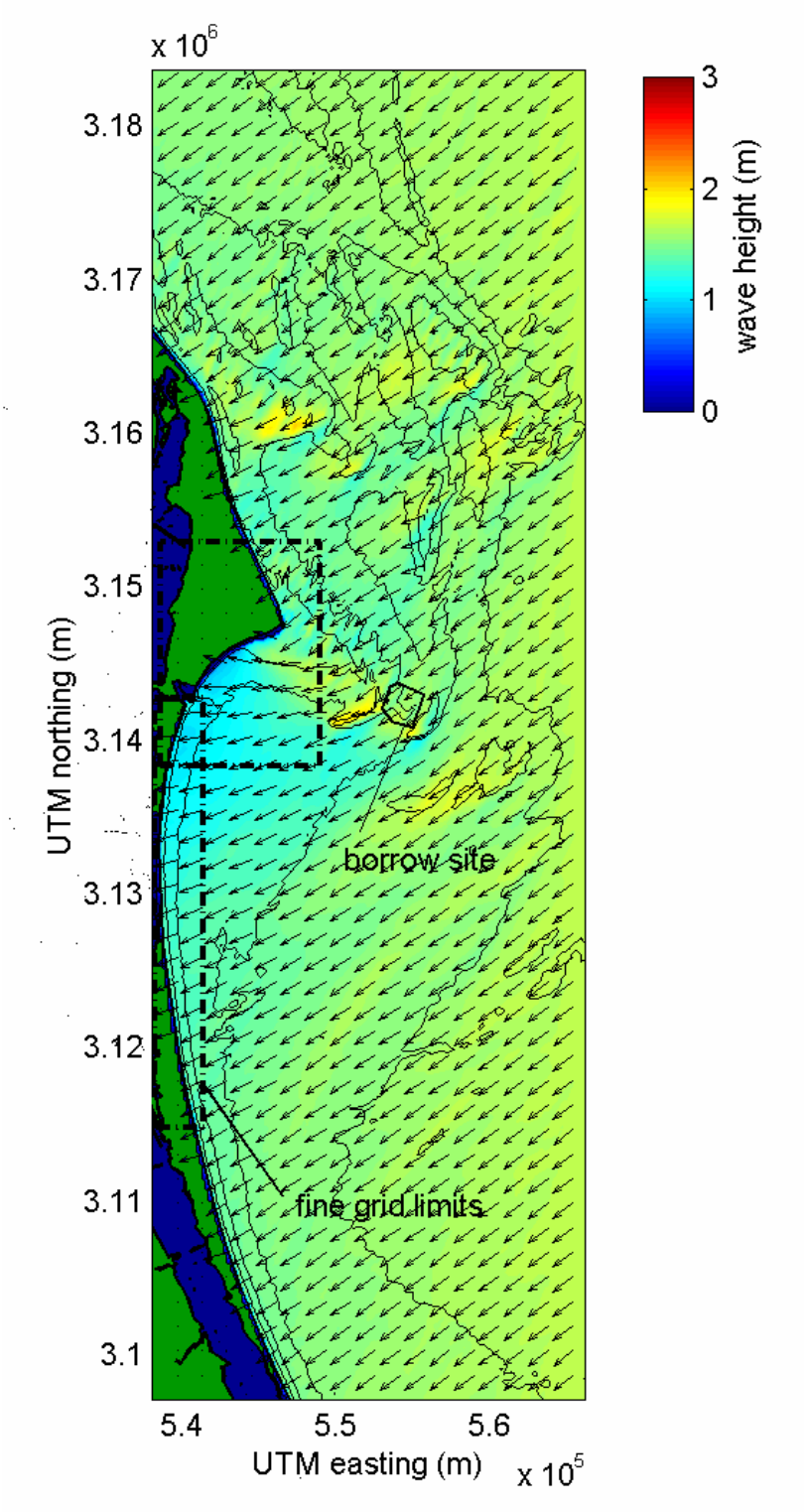

Figure C1-1. STWAVE model output for the borrow site in Area A, wave Case 1A (H_s = 1.7 m, T_{peak} = 7.7 sec, θ_{peak}= 55 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

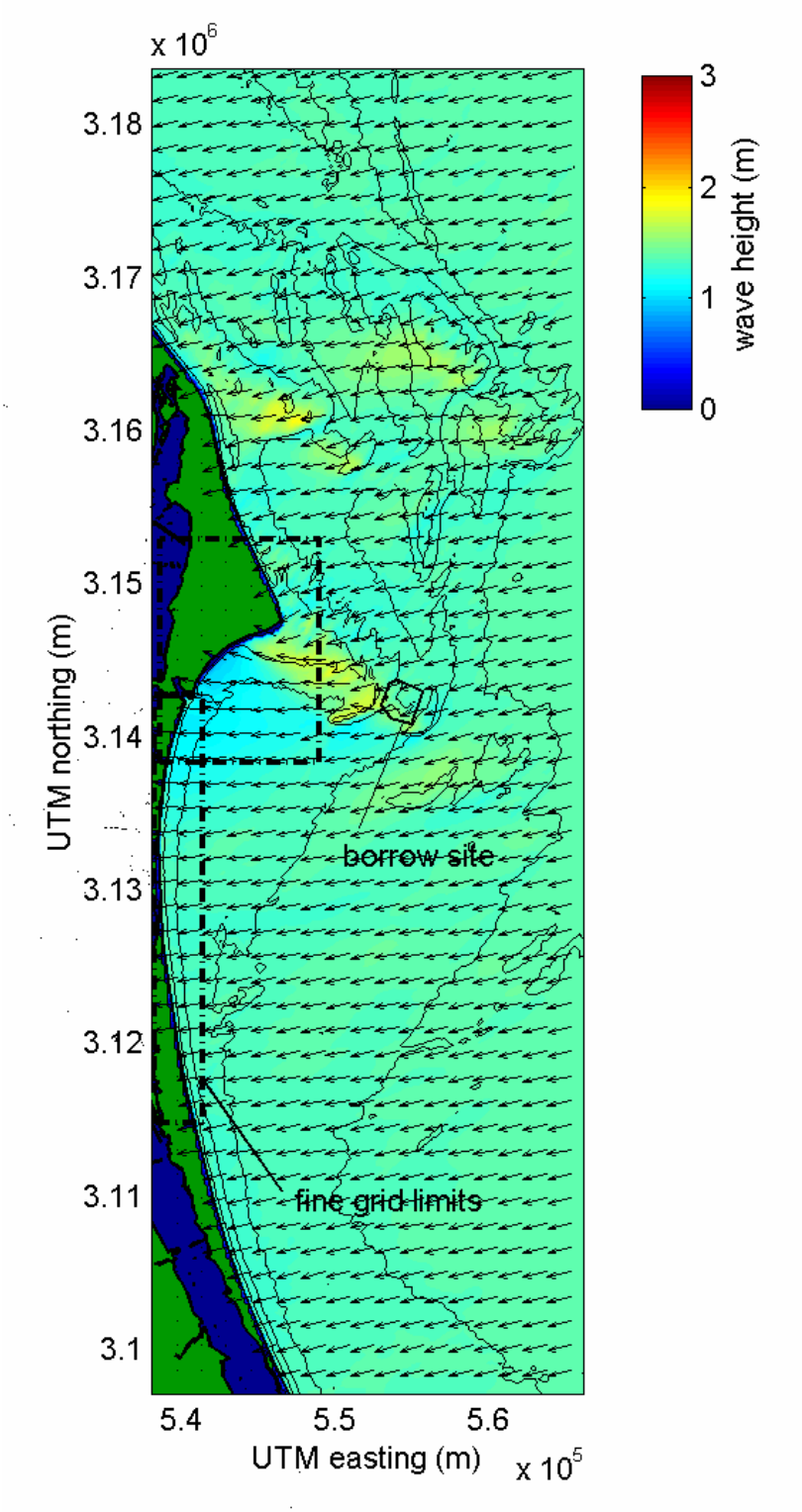

Figure C1-2. STWAVE model output for the borrow site in Area A, wave Case 2A (H_s = 1.4 m, T_{peak} = 7.7 sec, θ_{peak} = 80 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

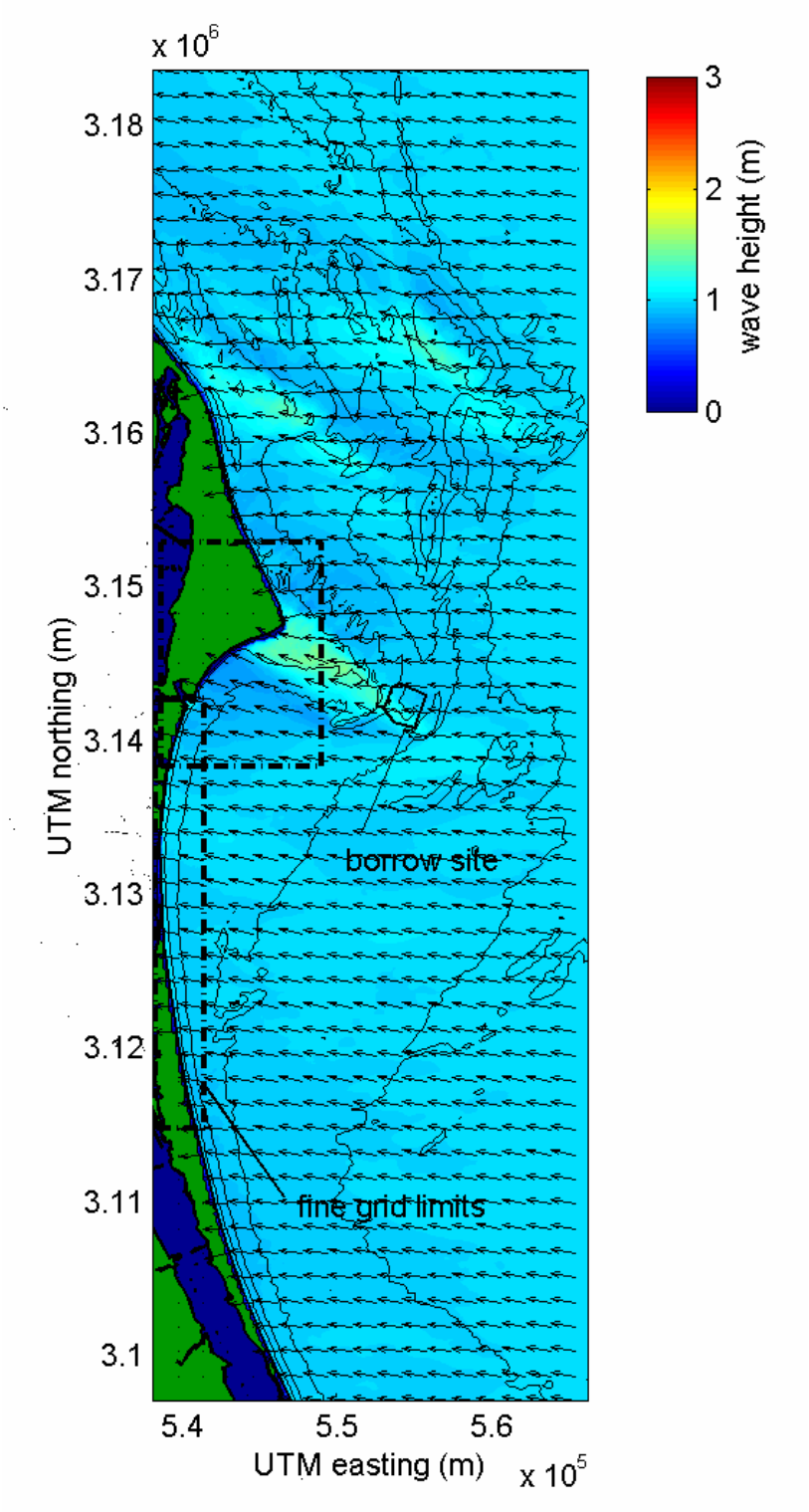

Figure C1-3. STWAVE model output for the borrow site in Area A, wave Case 3A (H_s = 1.0 m, T_{peak} = 7.7 sec, θ_{peak} = 100 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

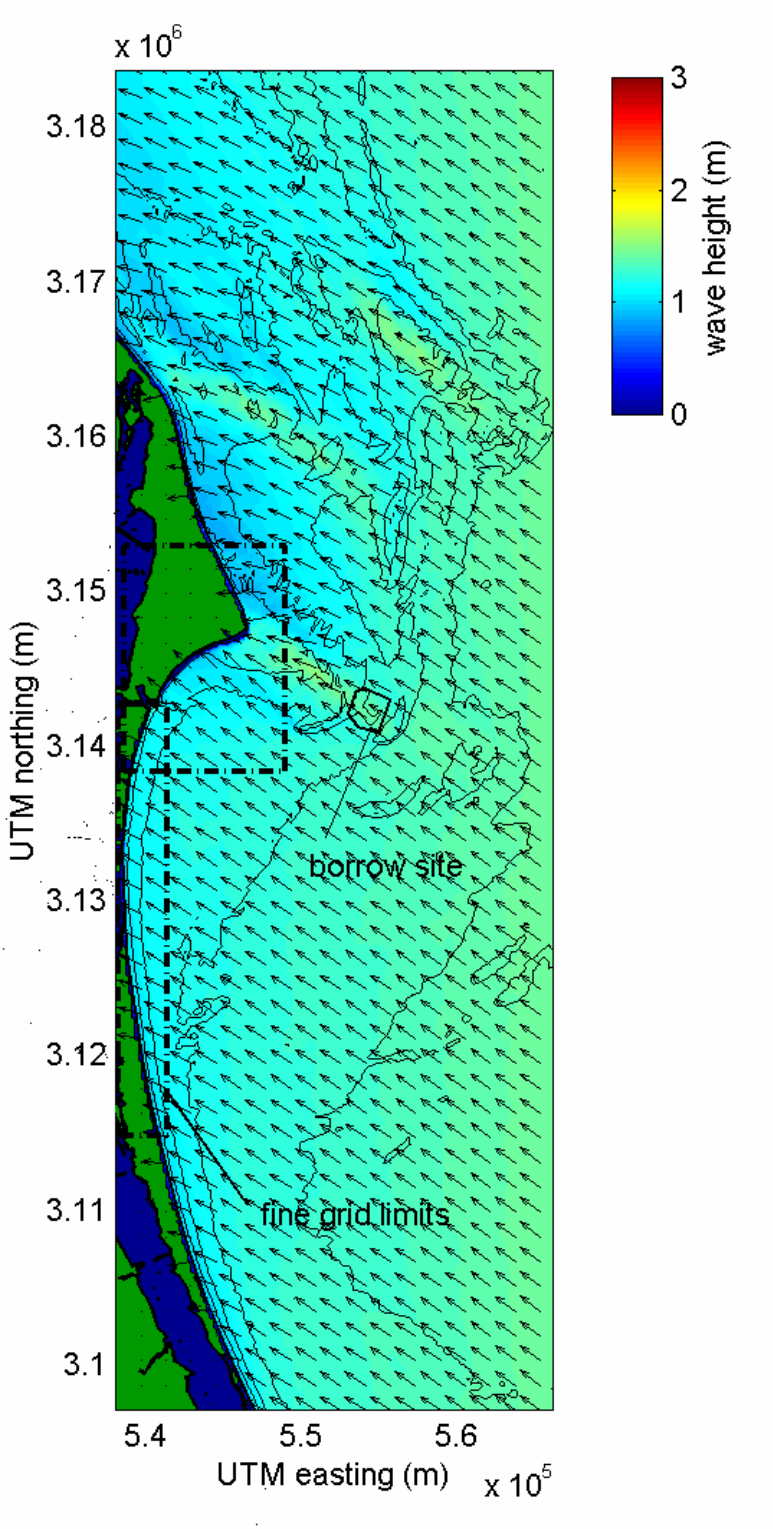

Figure C1-4. STWAVE model output for the borrow site in Area A, wave Case 4A (H_s = 1.5 m, T_{peak} = 6.3 sec, θ_{peak} = 130 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

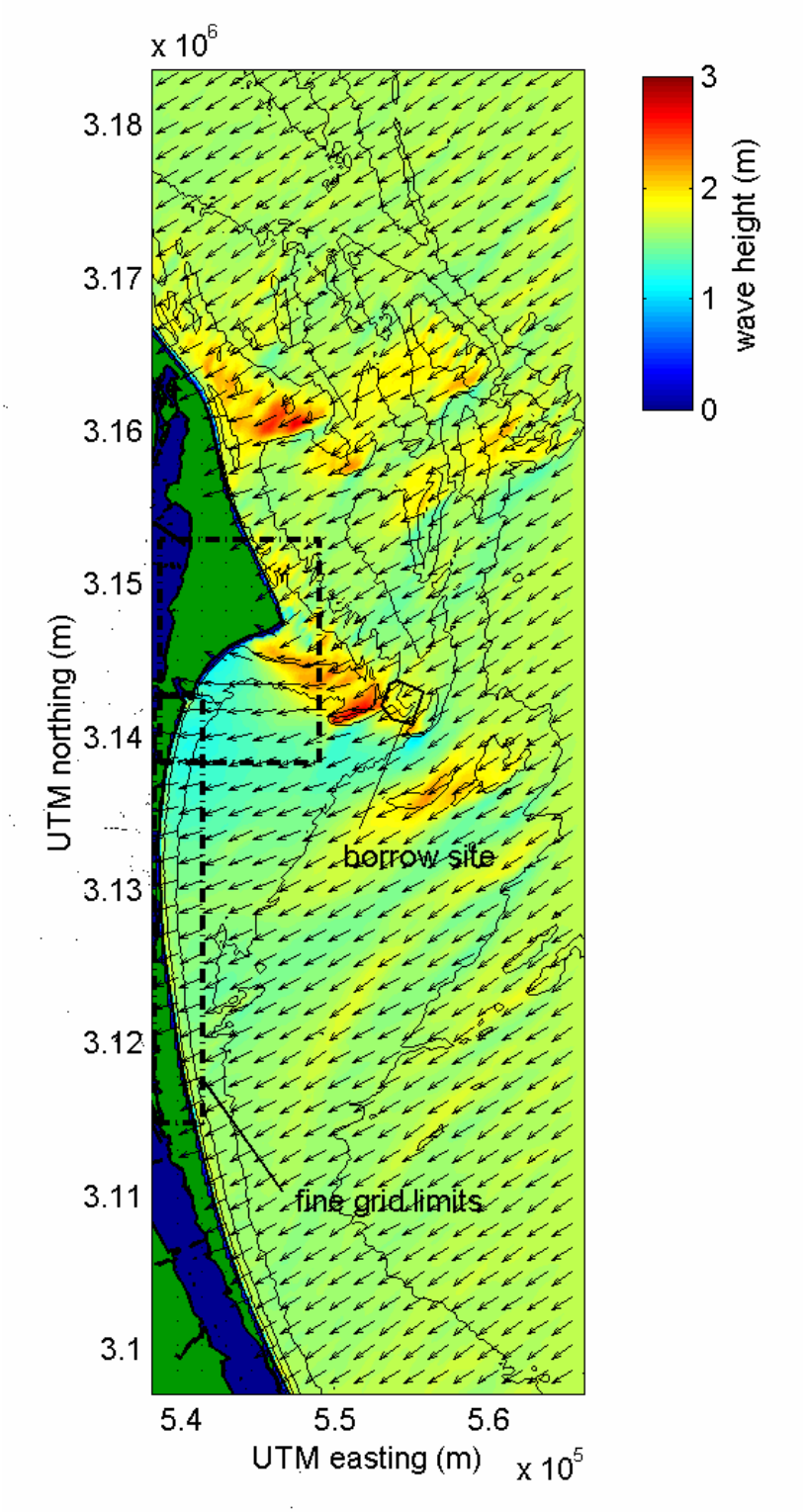

Figure C1-5. STWAVE model output for the borrow site in Area A, wave Case 5A (H_s = 1.7 m, T_{peak} = 12.5 sec, θ_{peak} = 60 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

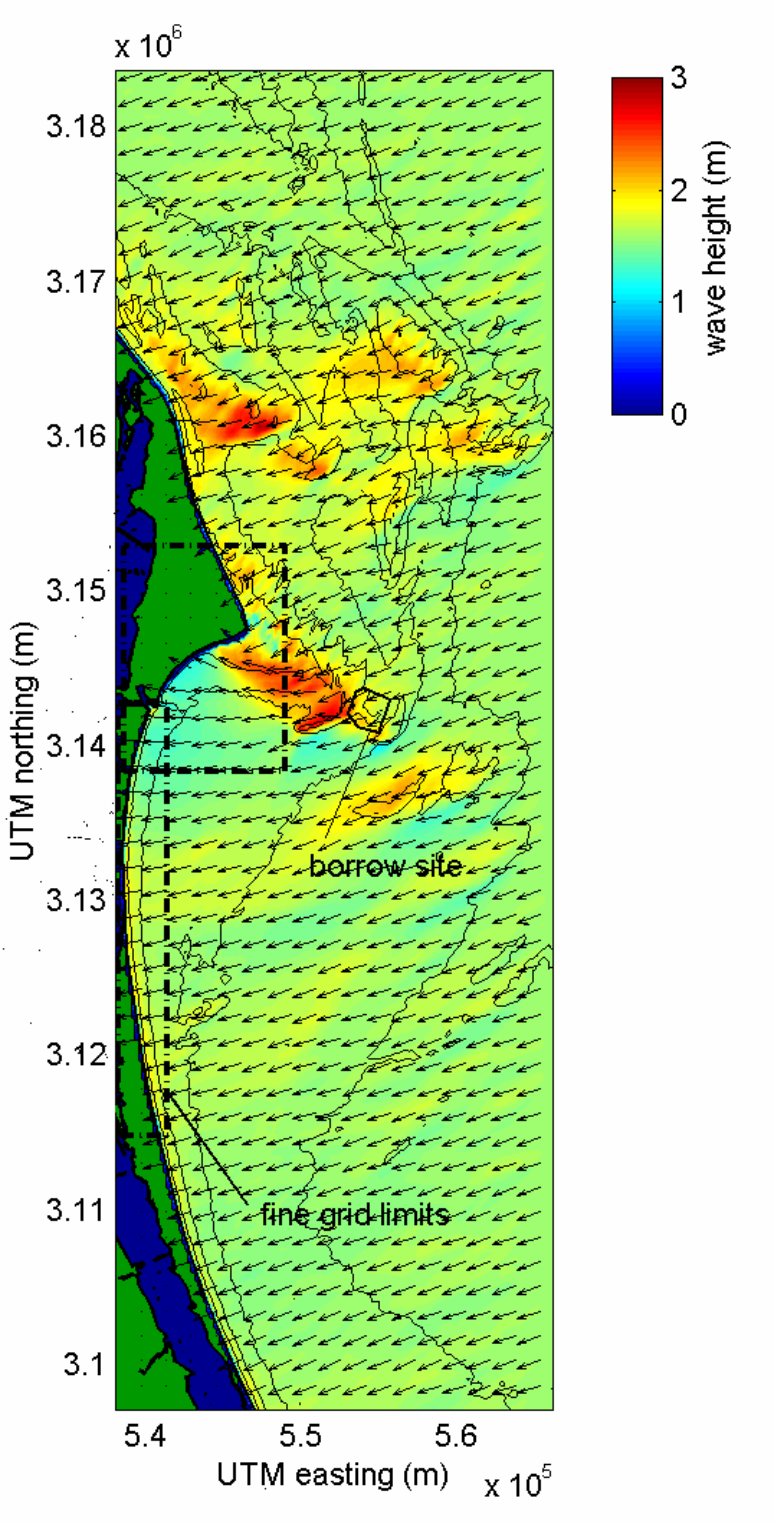

Figure C1-6. STWAVE model output for the borrow site in Area A, wave Case 6A (H_s = 1.6 m, T_{peak} = 14.3 sec, θ_{peak} = 65 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

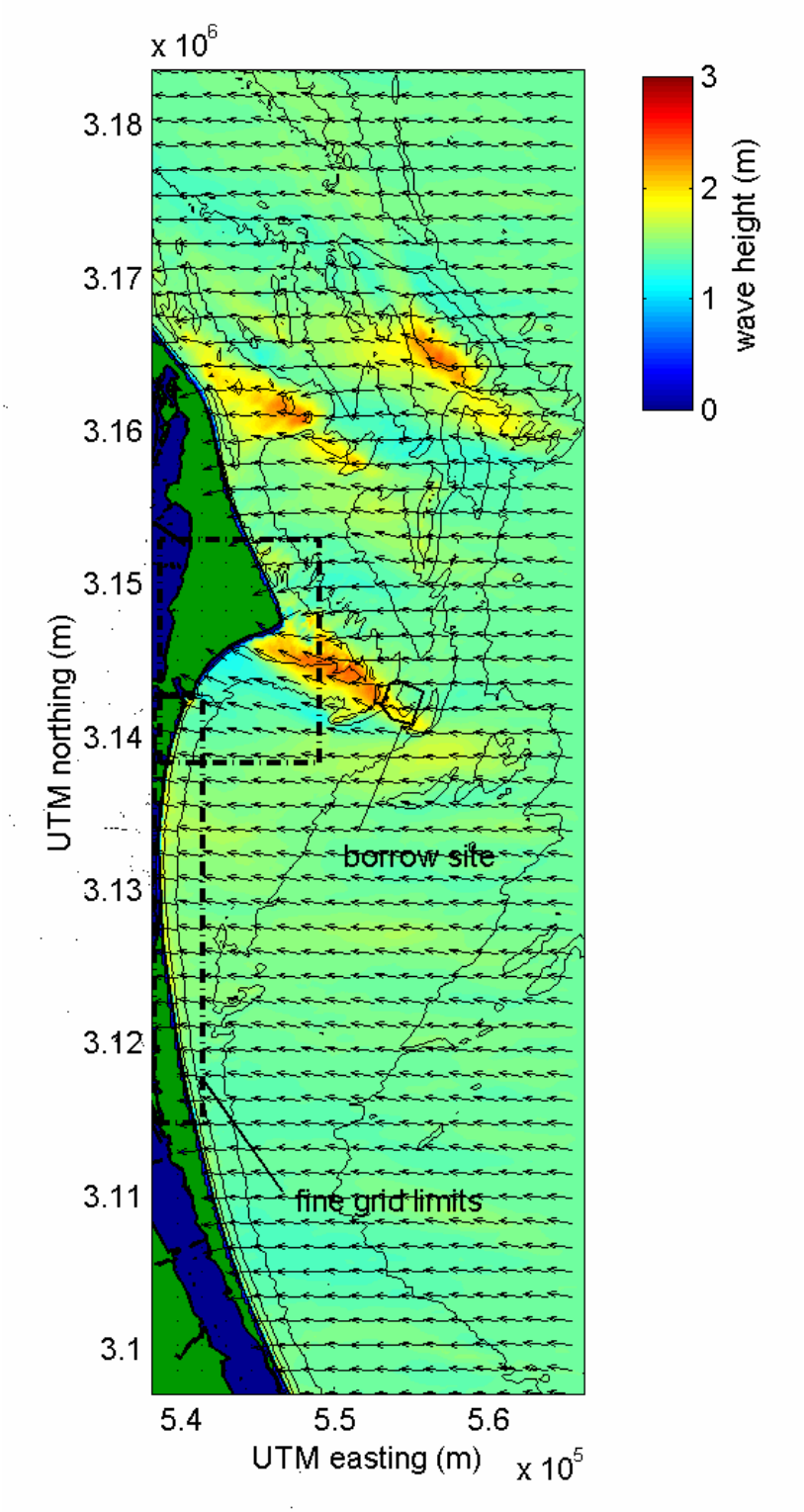

Figure C1-7. STWAVE model output for the borrow site in Area A, wave Case 7A (H_s = 1.5 m, T_{peak} = 11.1 sec, θ_{peak} = 100 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

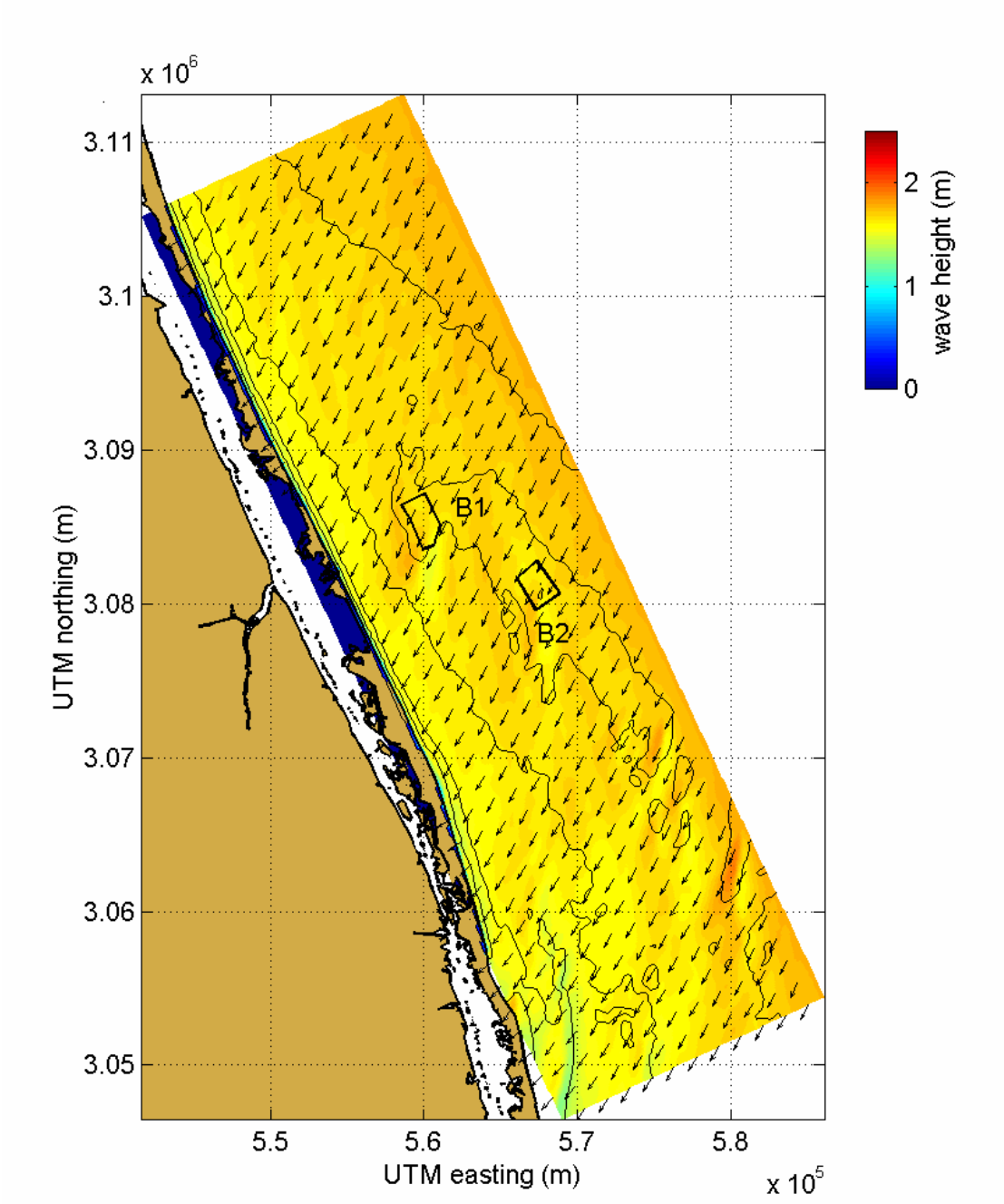

Figure C1-8. STWAVE model output for the borrow sites in Area B, wave Case 1B (H_s = 1.9 m, T_{peak} = 6.9 sec, θ_{peak}=25 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

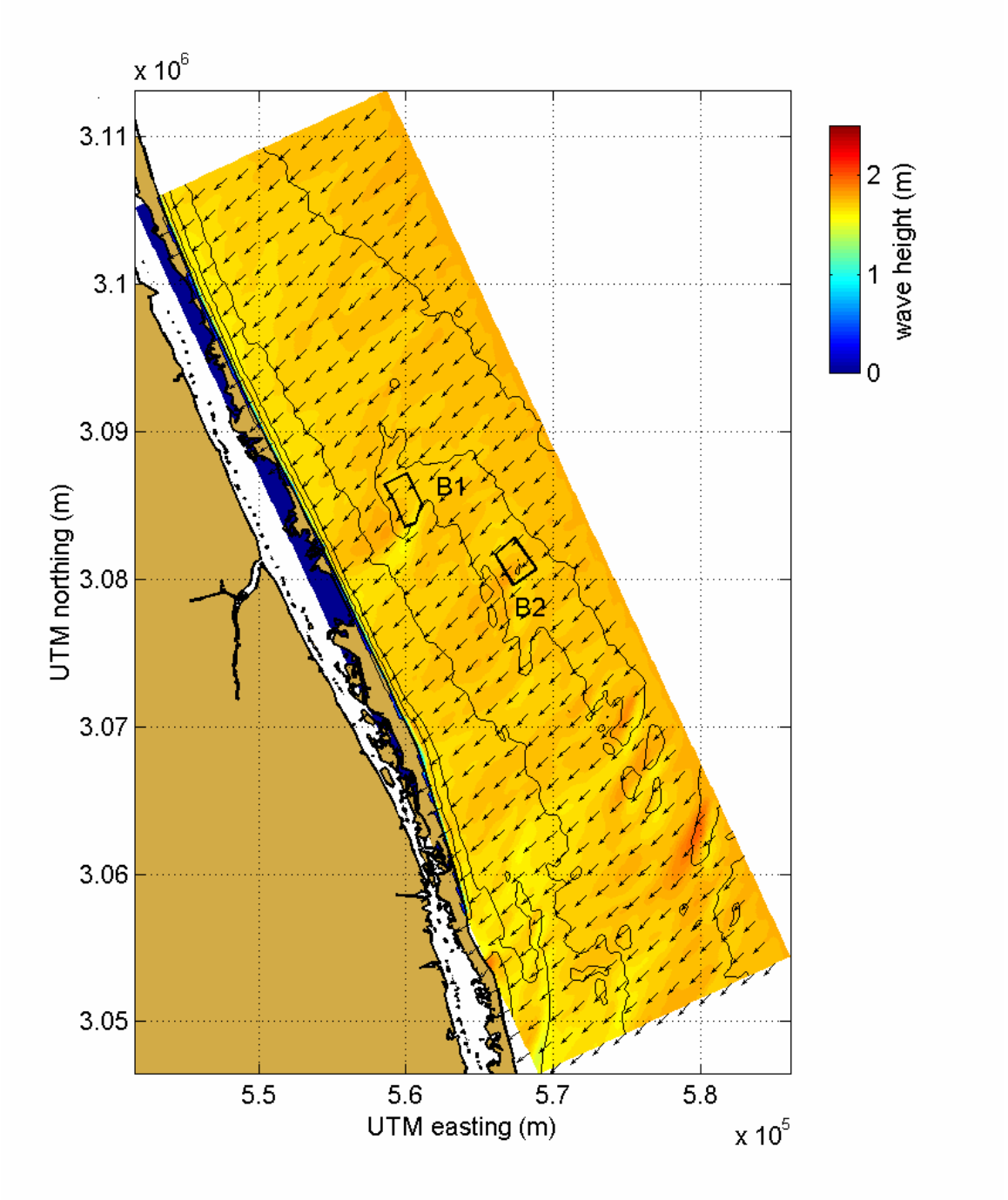

Figure C1-9. STWAVE model output for the borrow sites in Area B, wave Case 2B (H_s = 1.8 m, T_{peak} = 7.6 sec, θ_{peak}= 45 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

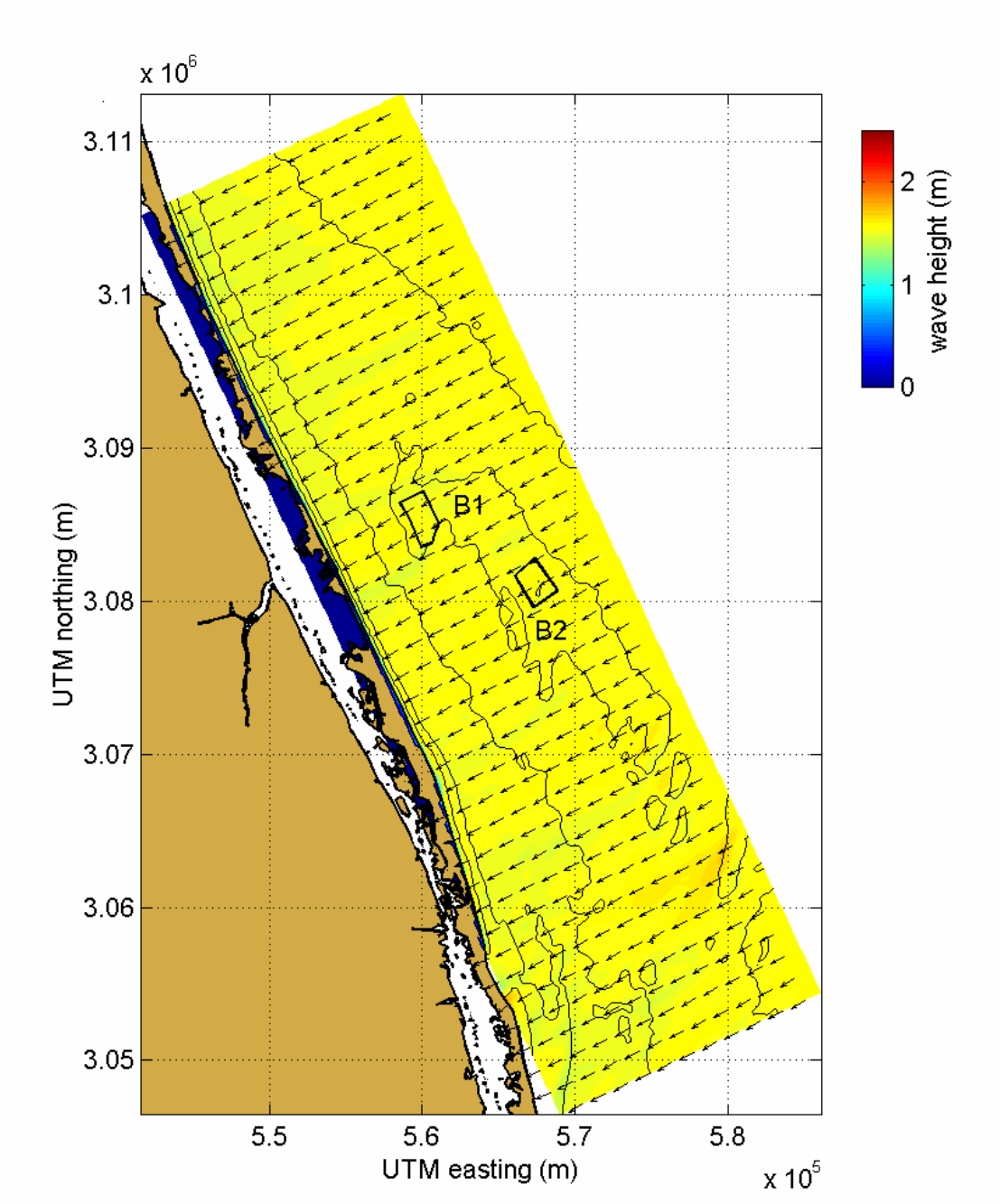

Figure C1-10. STWAVE model output for the borrow sites in Area B, wave Case 3B (H_s = 1.6 m, T_{peak} = 7.7 sec, θ_{peak} = 60 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

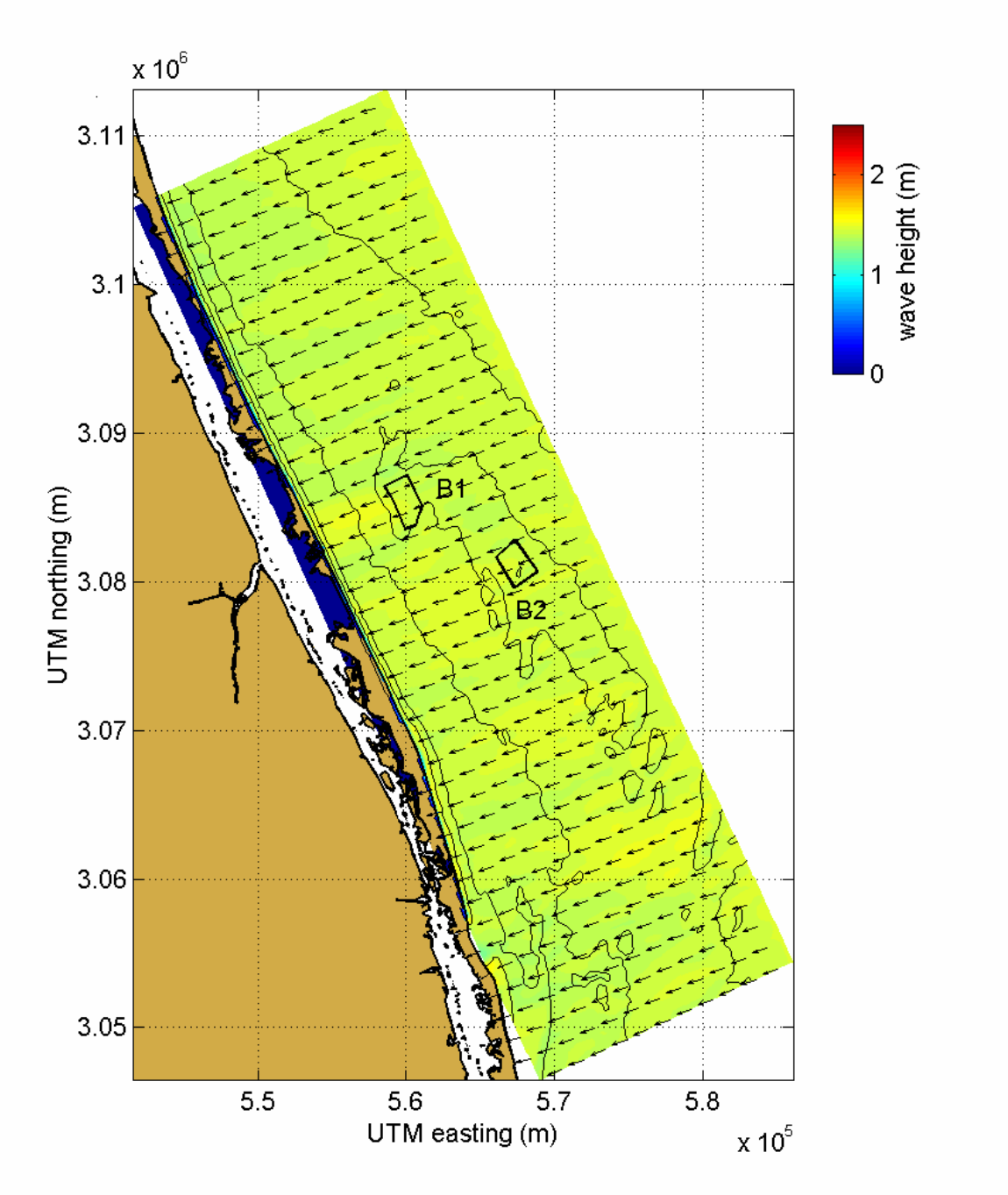

Figure C1-11. STWAVE model output for the borrow sites in Area B, wave Case 4B (H_s = 1.5 m, T_{peak} = 7.7 sec, θ_{peak} = 70 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

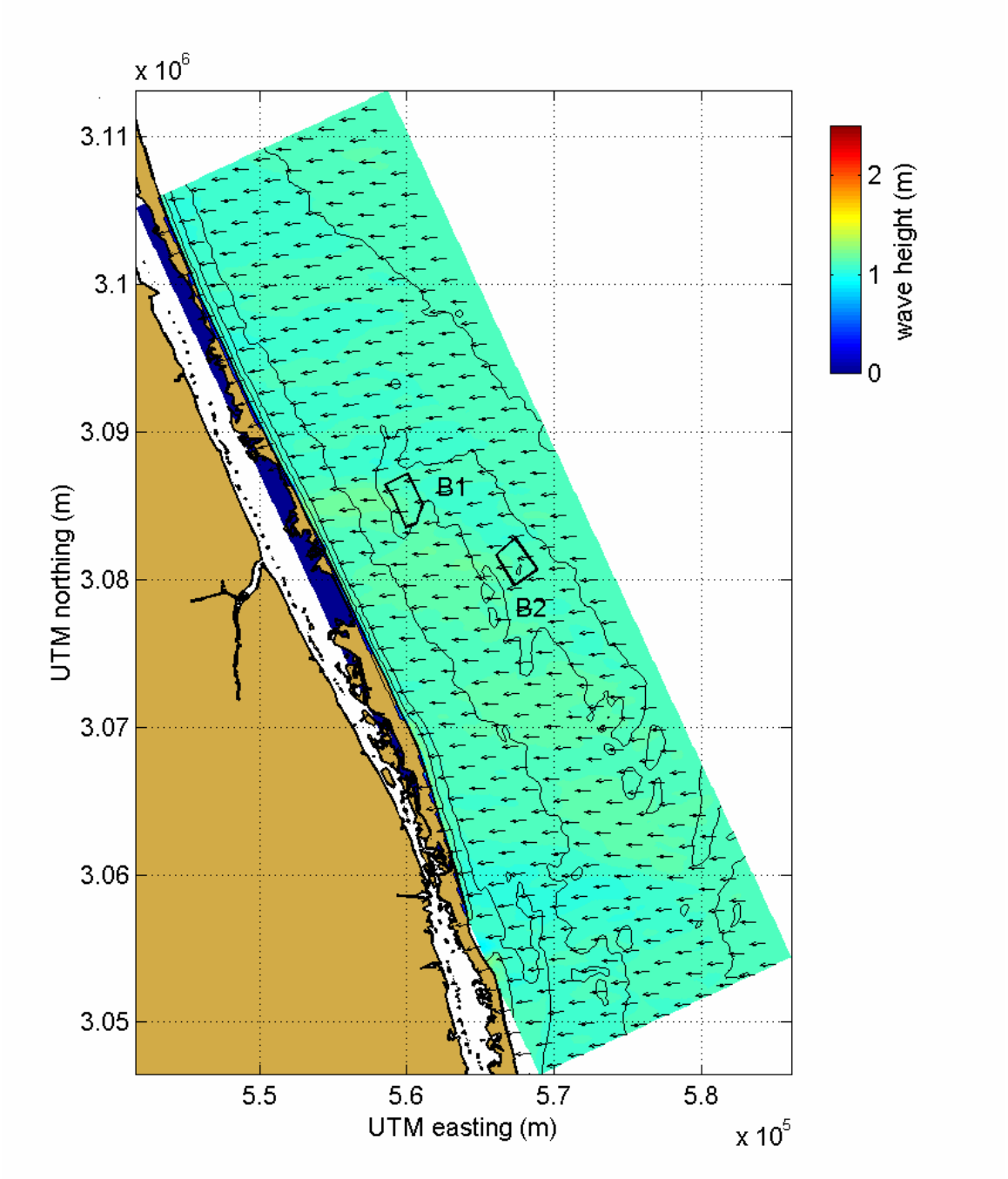

Figure C1-12. STWAVE model output for the borrow sites in Area B, wave Case 5B (H_s = 1.1 m, T_{peak} = 7.7 sec, θ_{peak} = 90 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

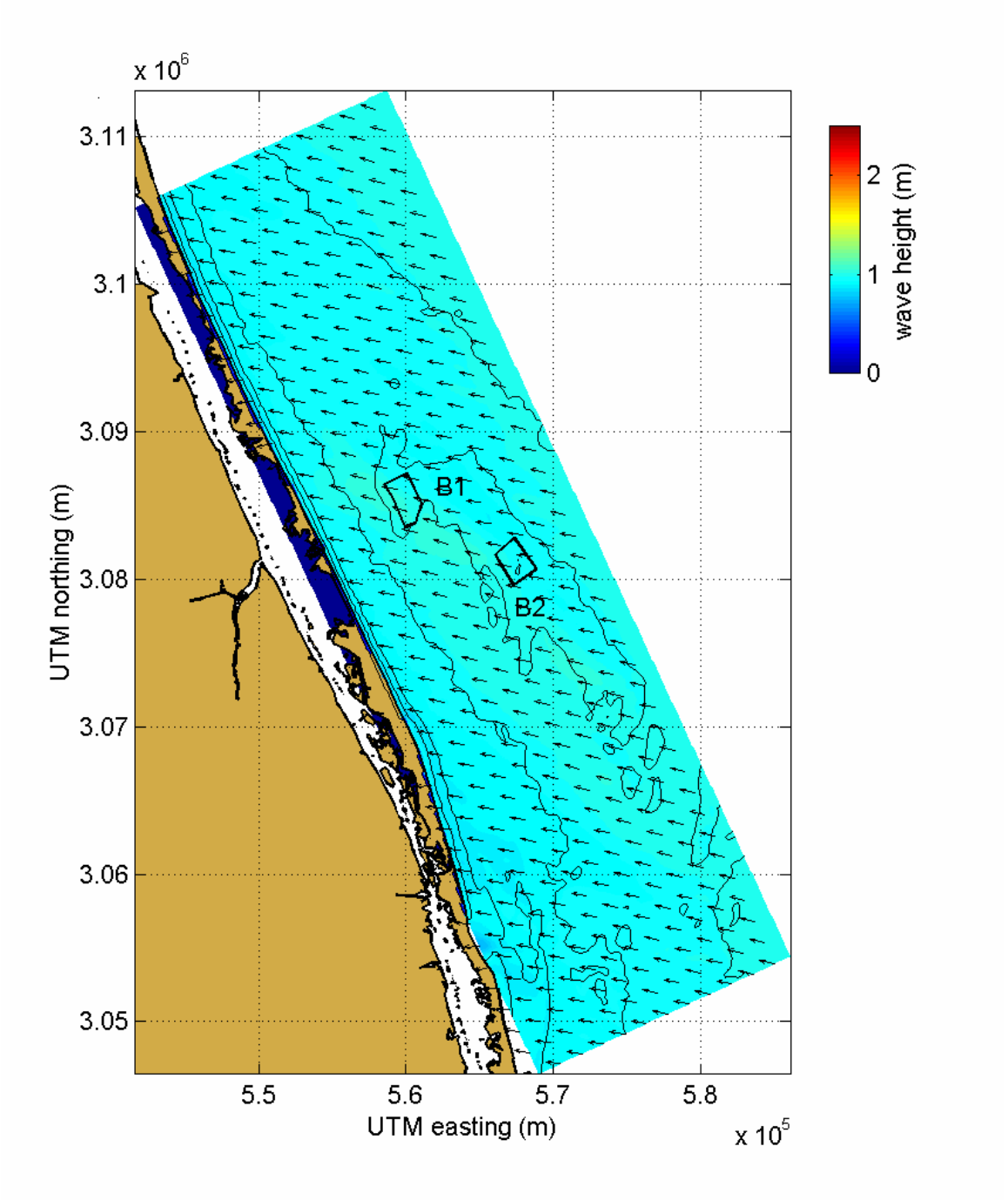

Figure C1-13. STWAVE model output for the borrow sites in Area B, wave Case 6B (H_s = 1.1 m, T_{peak} = 6.9 sec, θ_{peak} = 105 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

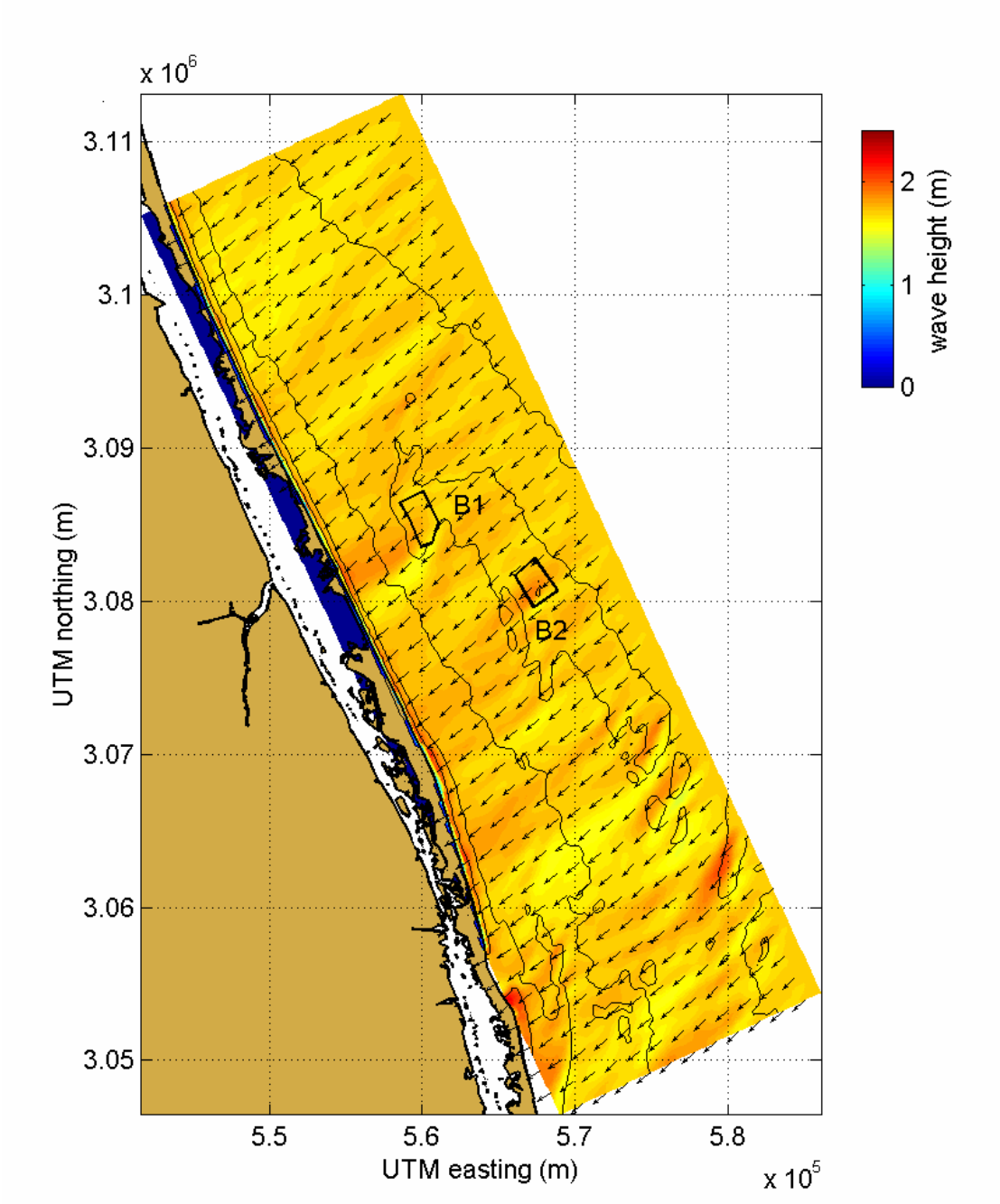

Figure C1-14. STWAVE model output for the borrow sites in Area B, wave Case 7B (H_s = 1.7 m, T_{peak} = 11.4 sec, θ_{peak} = 50 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

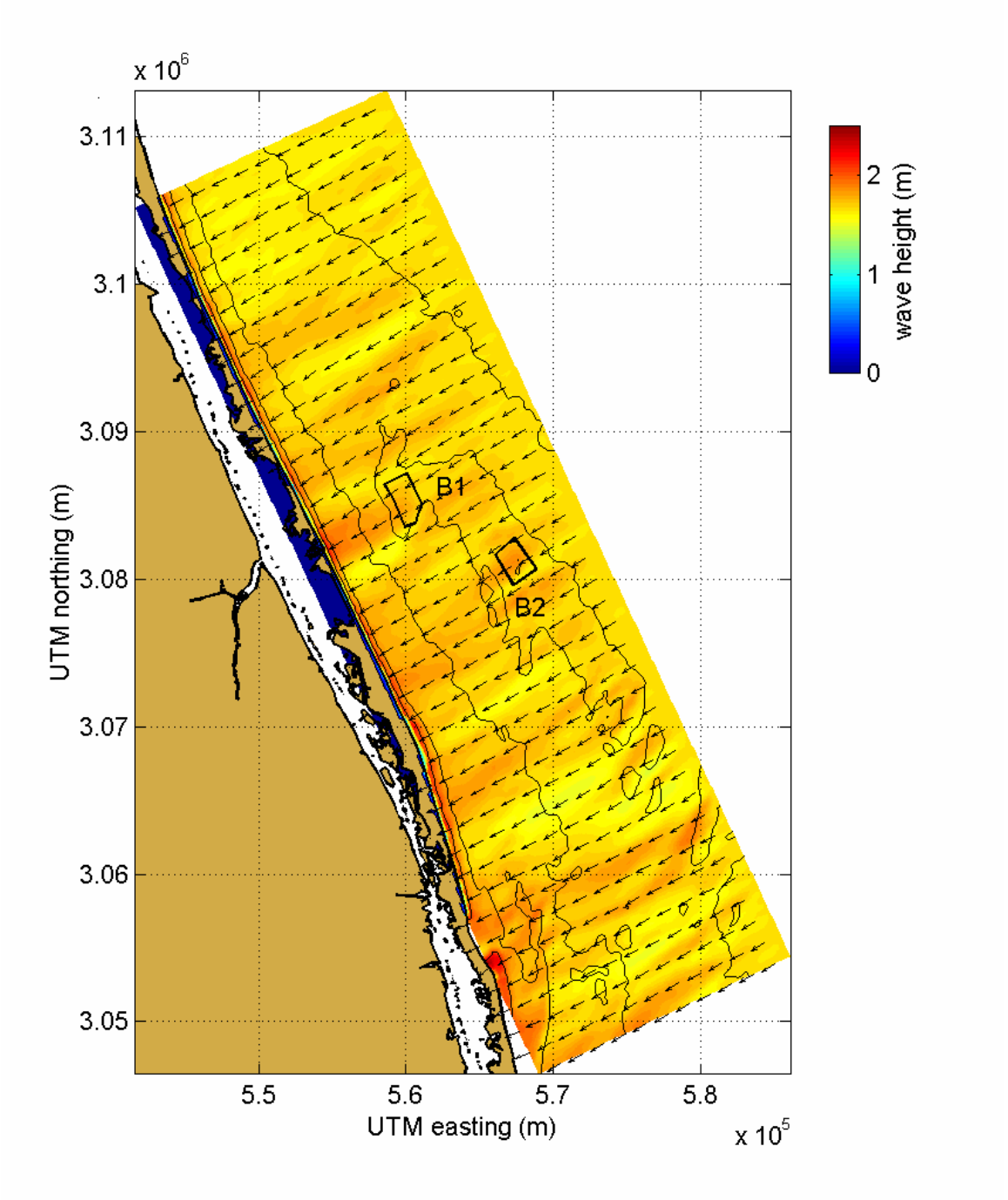

Figure C1-15. STWAVE model output for the borrow sites in Area B, wave Case 8B (H_s = 1.7 m, T_{peak} = 13.9 sec, θ_{peak} = 60 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

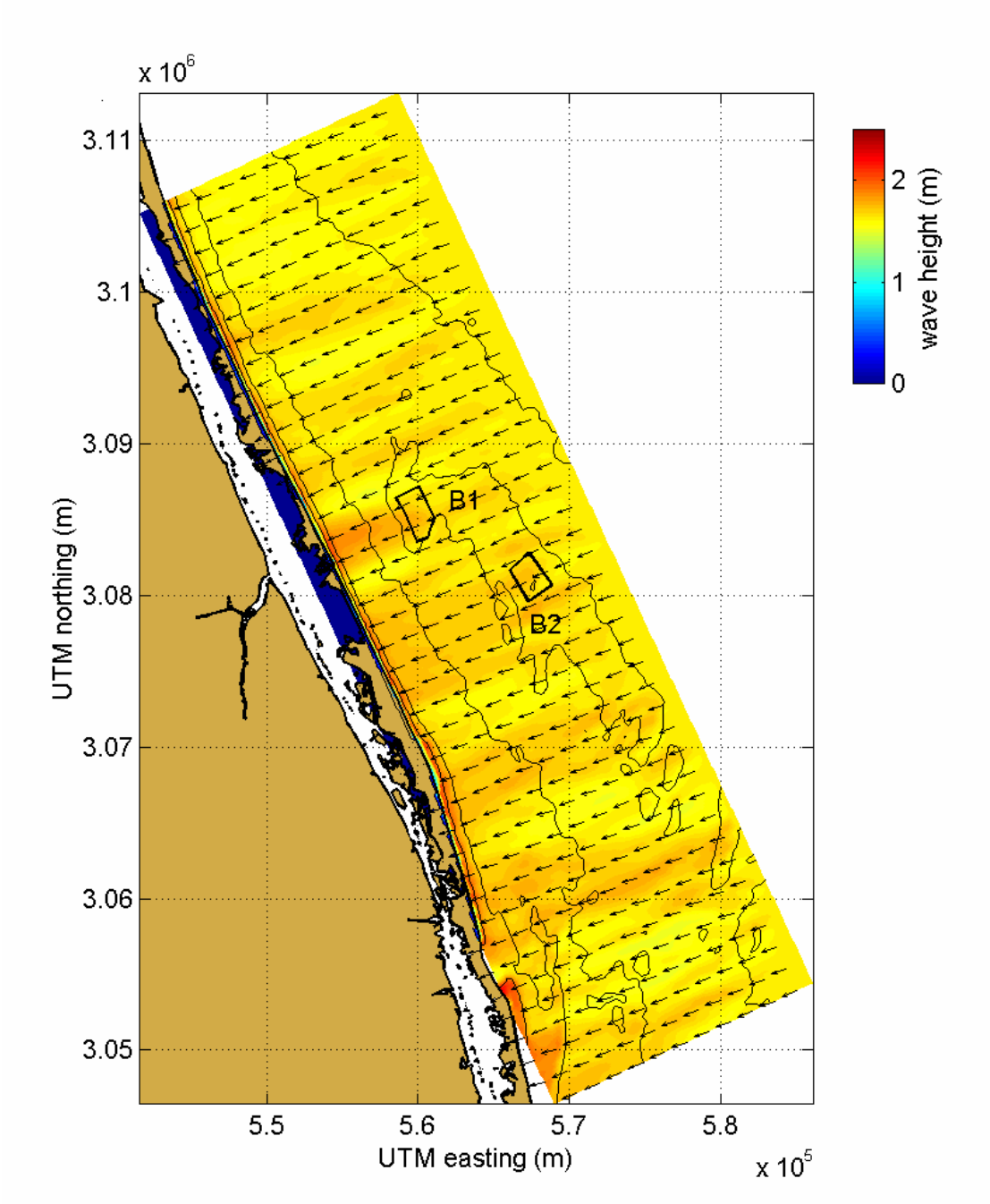

Figure C1-16. STWAVE model output for the borrow sites in Area B, wave Case 9B (H_s = 1.7 m, T_{peak} = 12.4c, θ_{peak} = 70 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

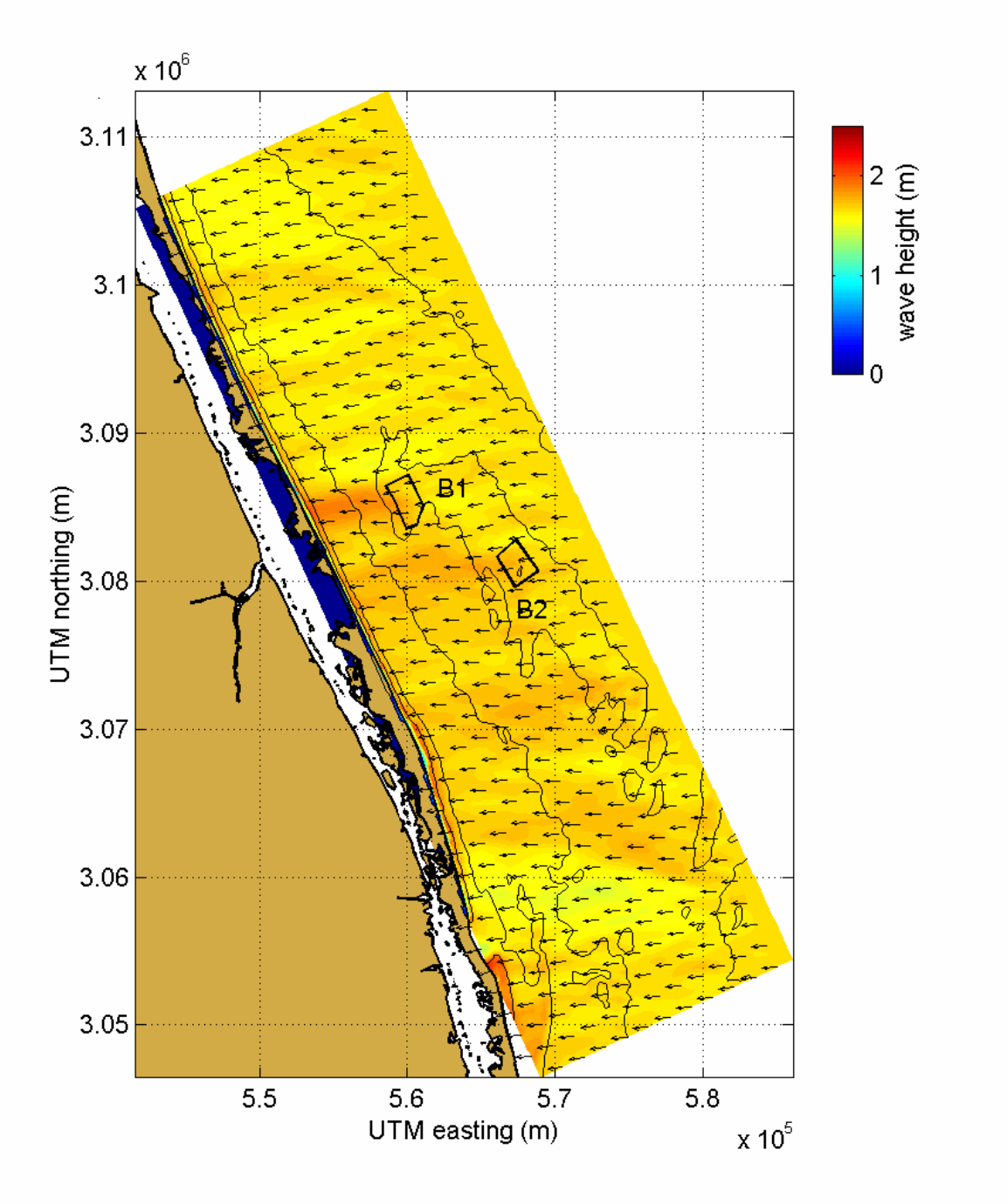

Figure C1-17. STWAVE model output for the borrow sites in Area B, wave Case 10B (H_s = 1.7m, T_{peak} = 10.8, θ_{peak} = 90 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

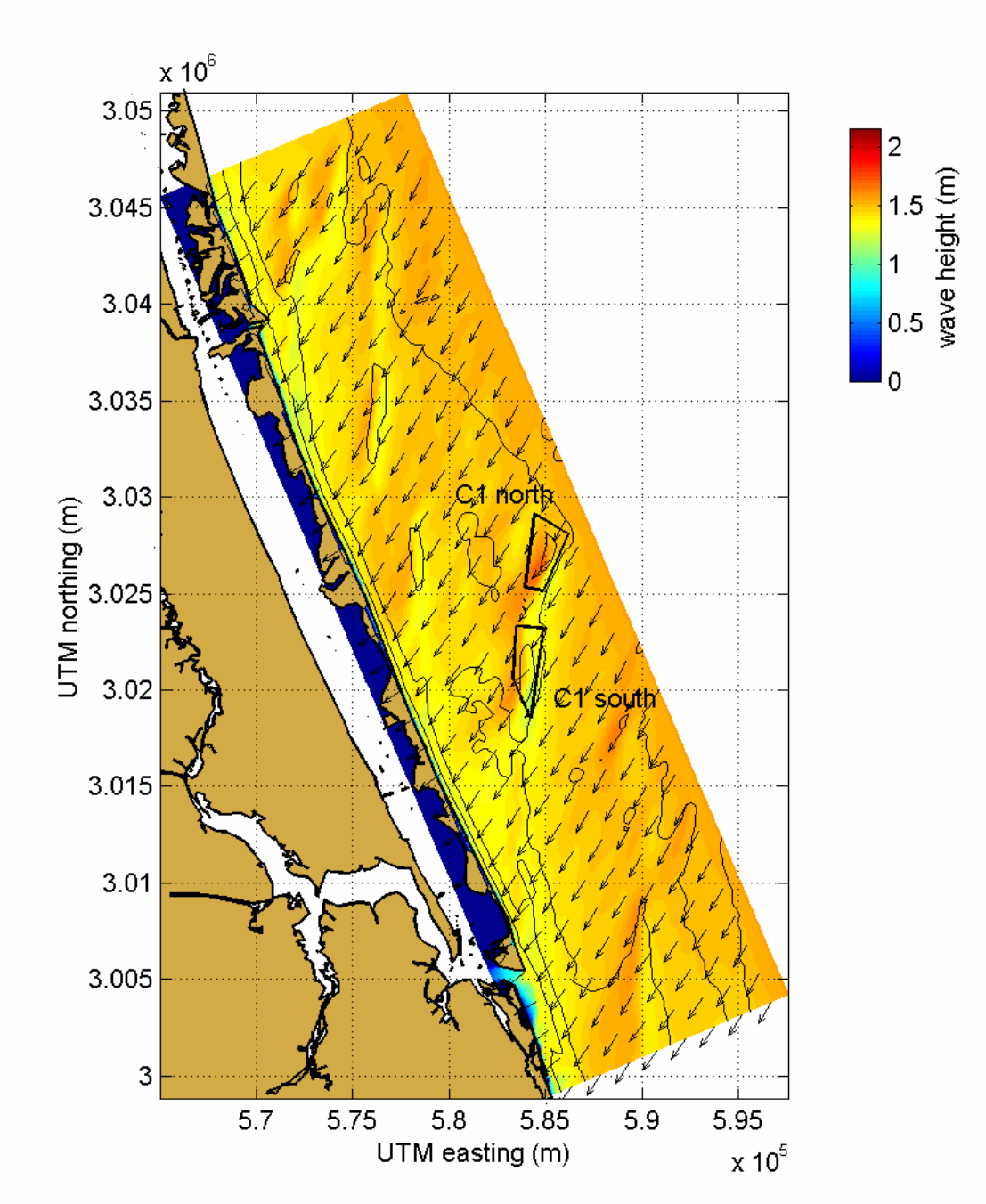

Figure C1-18. STWAVE model output for the borrow sites in Area C, wave Case 1C (H_s = 1.6 m, T_{peak} = 6.8 sec, θ_{peak} = 32 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

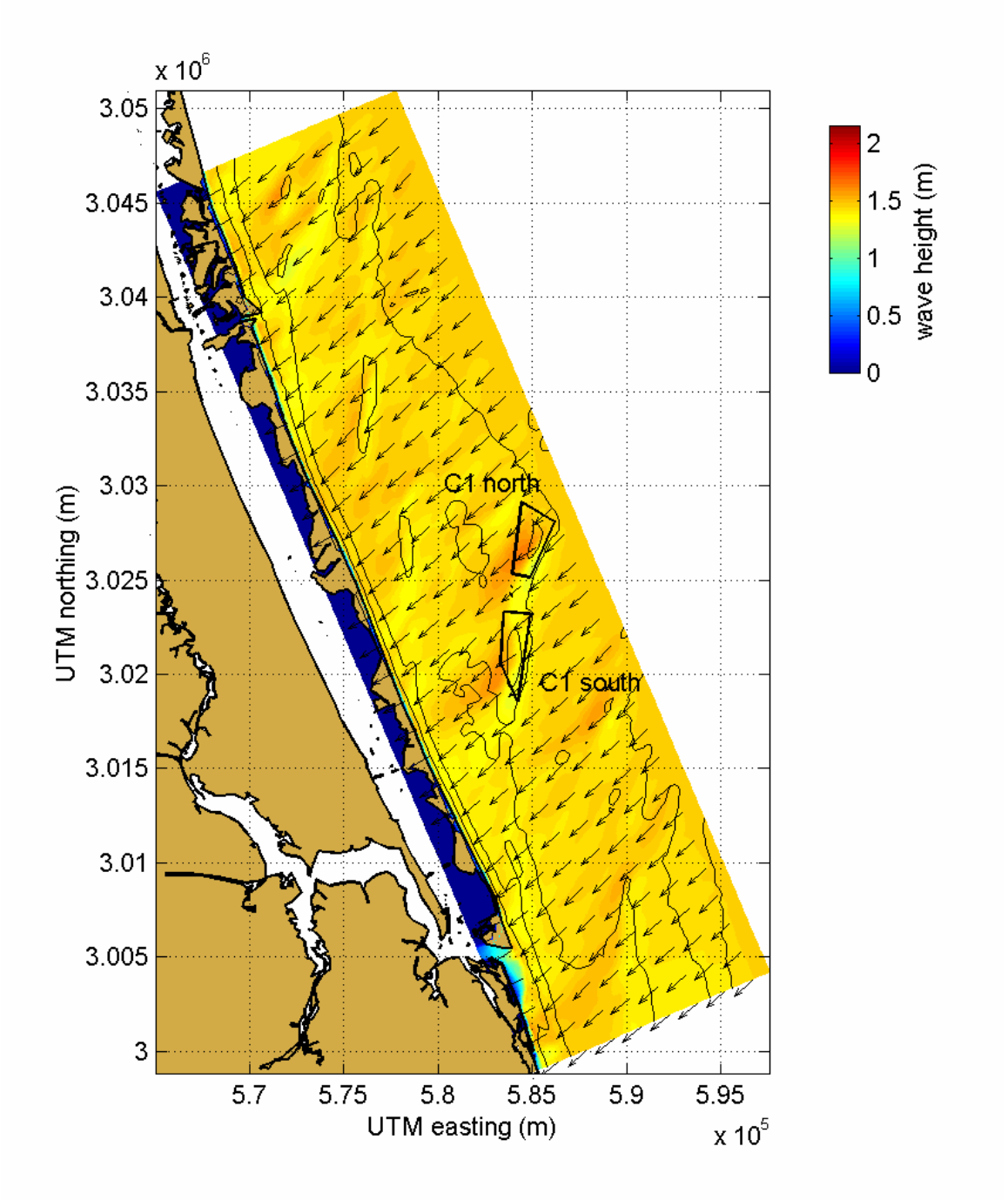

Figure C1-19. STWAVE model output for the borrow sites in Area C, wave Case 2C (H_s = 1.5 m, T_{peak} = 7.5 sec, θ_{peak} = 47 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

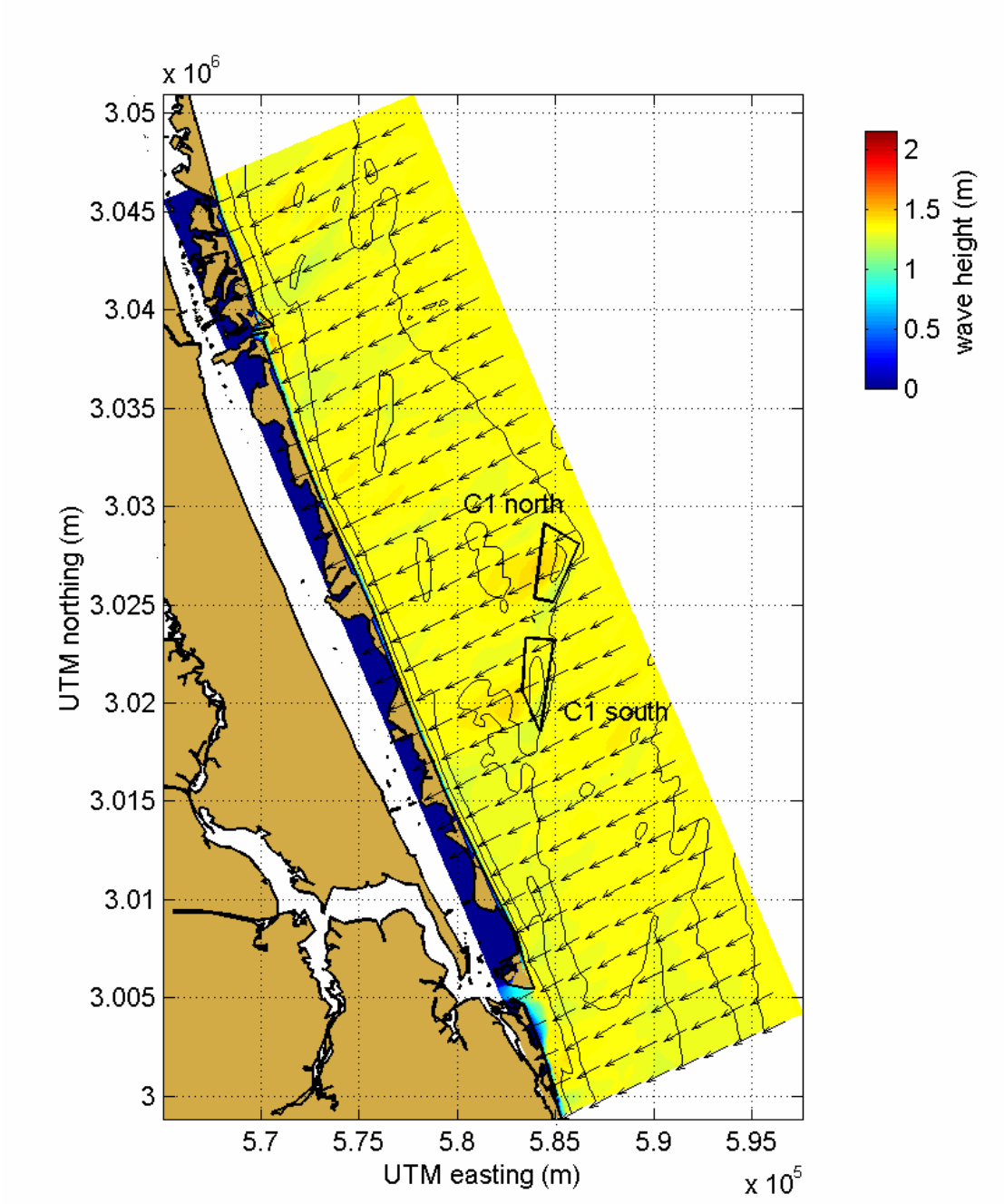

Figure C1-20. STWAVE model output for the borrow sites in Area C, wave Case 3C (H_s = 1.4 m, T_{peak} = 7.5 sec, θ_{peak} = 72 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

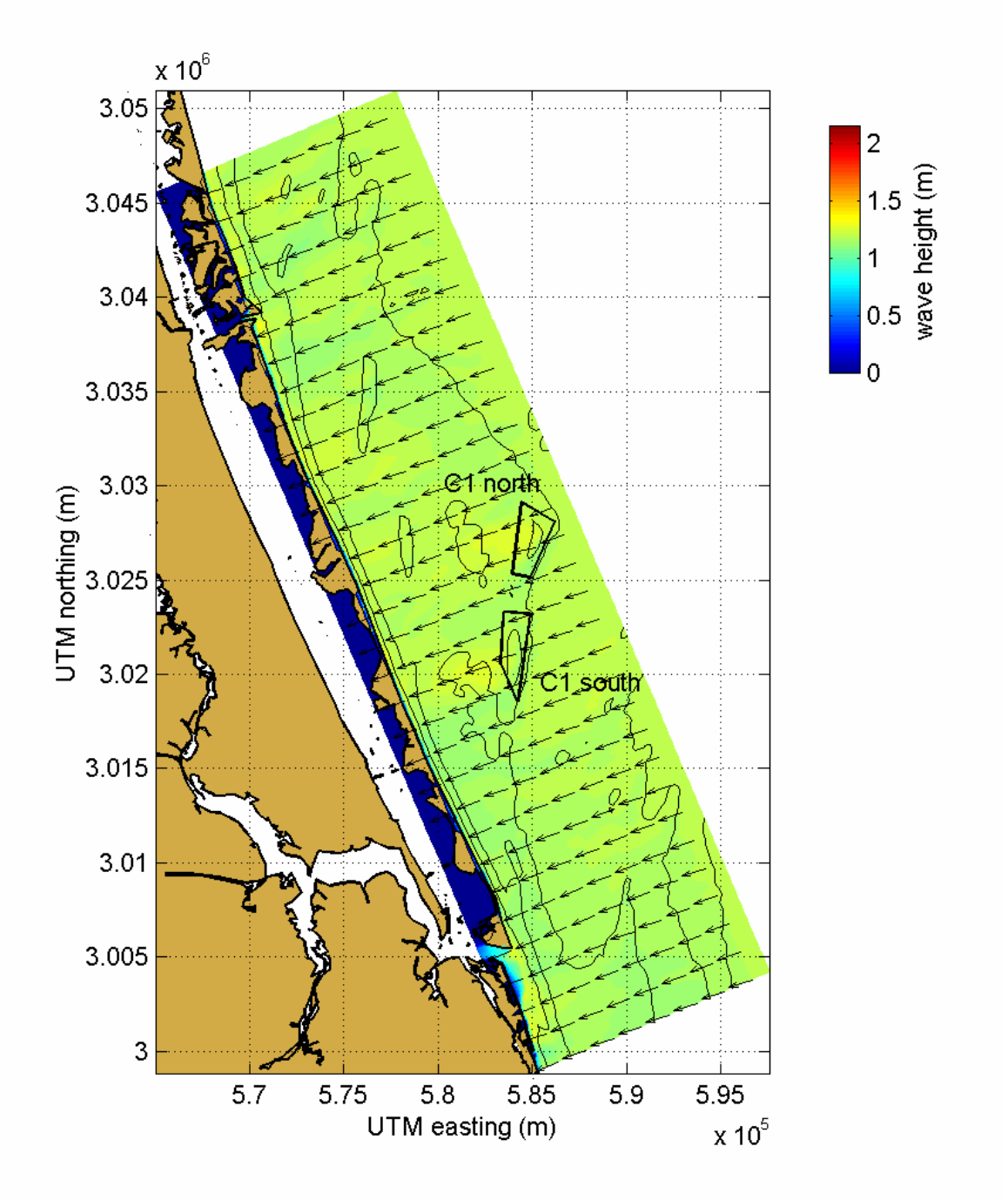

Figure C1-21. STWAVE model output for the borrow sites in Area C, wave Case 4C (H_s = 1.2 m, T_{peak} = 7.4 sec, θ_{peak} = 67 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

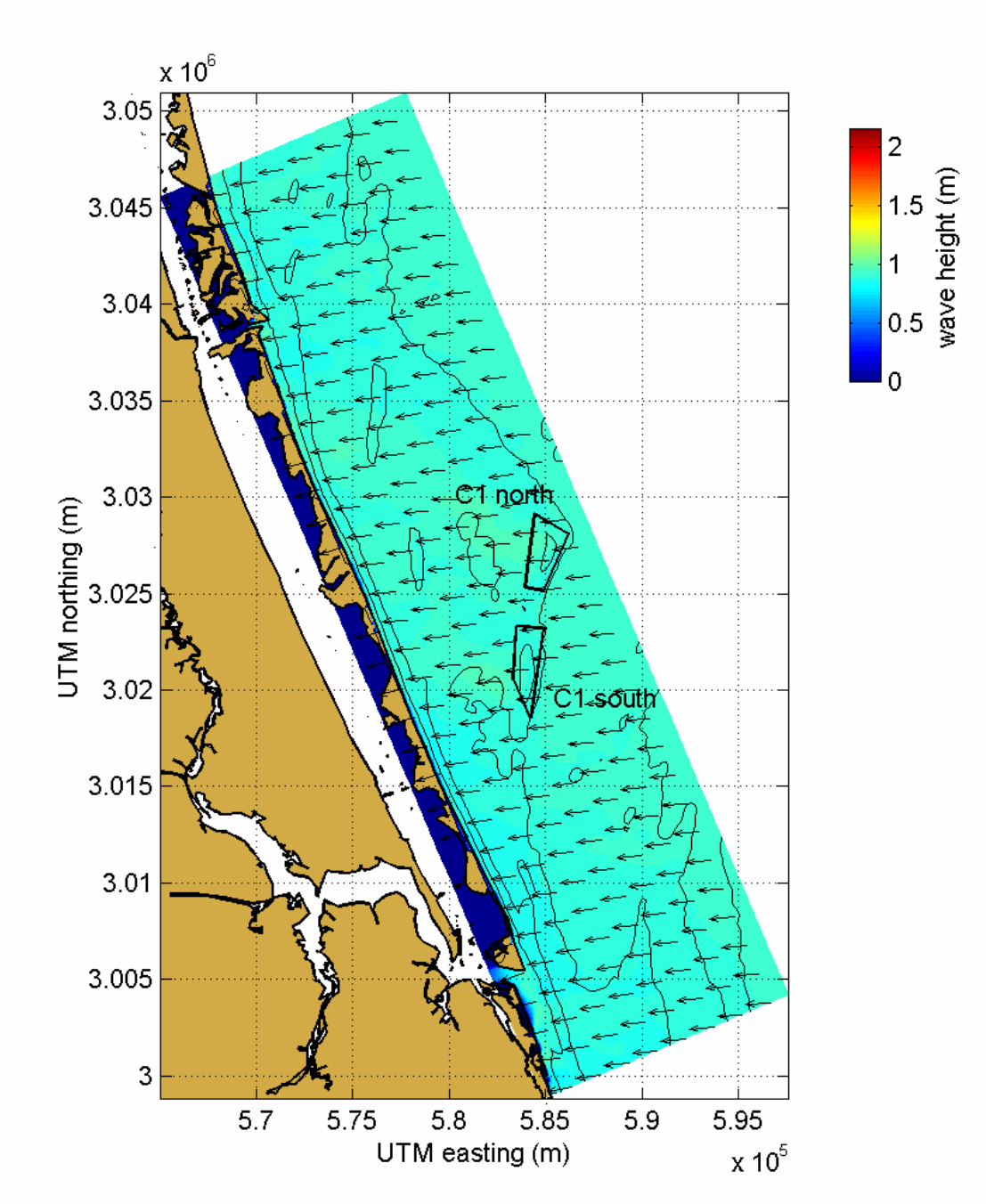

Figure C1-22. STWAVE model output for the borrow sites in Area C, wave Case 5C (H_s = 1.0 m, T_{peak} = 6.9 sec, θ_{peak} = 87 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

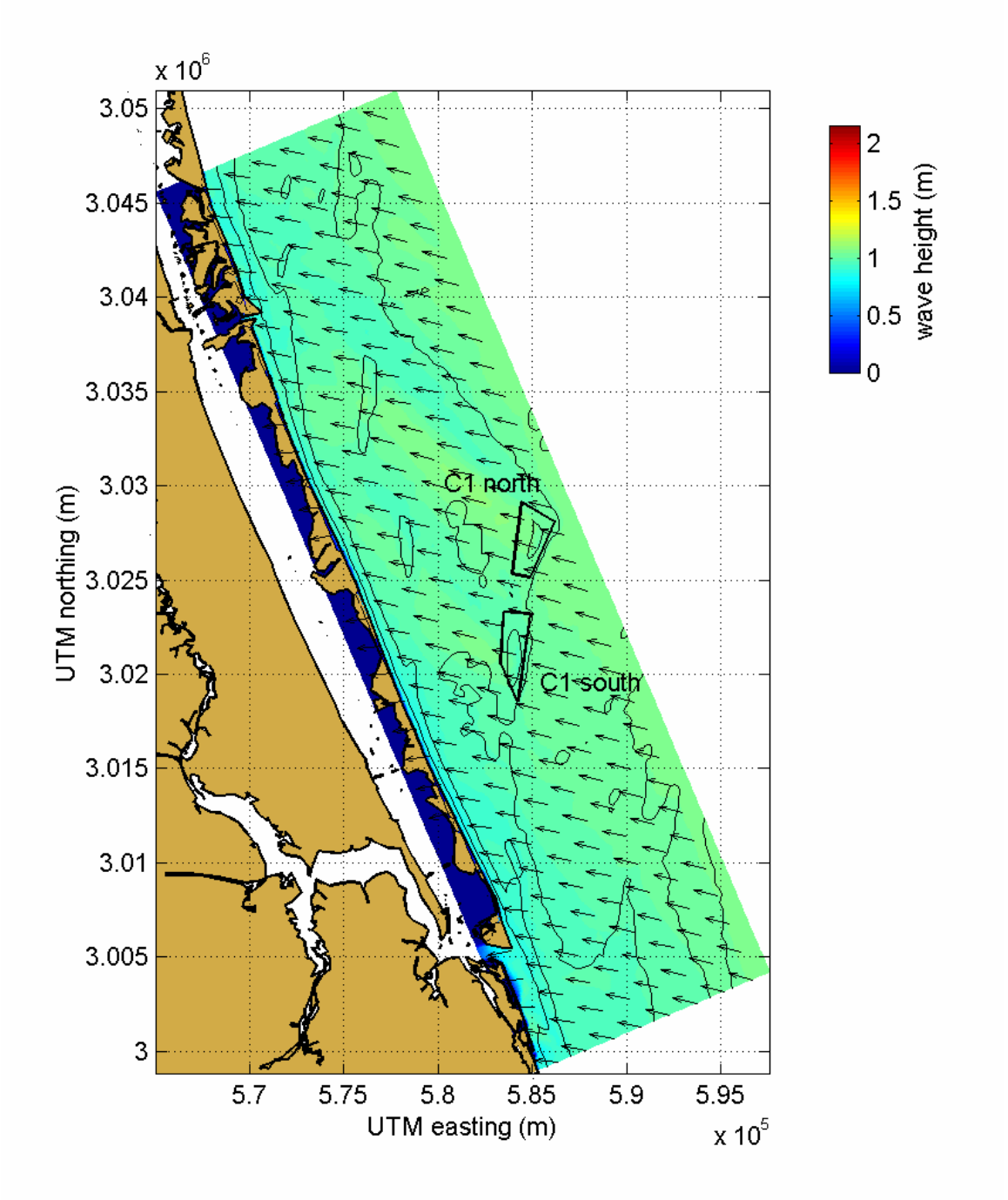

Figure C1-23. STWAVE model output for the borrow sites in Area C, wave Case 6C (H_s = 1.1 m, T_{peak} = 5.4 sec, θ_{peak} = 107 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

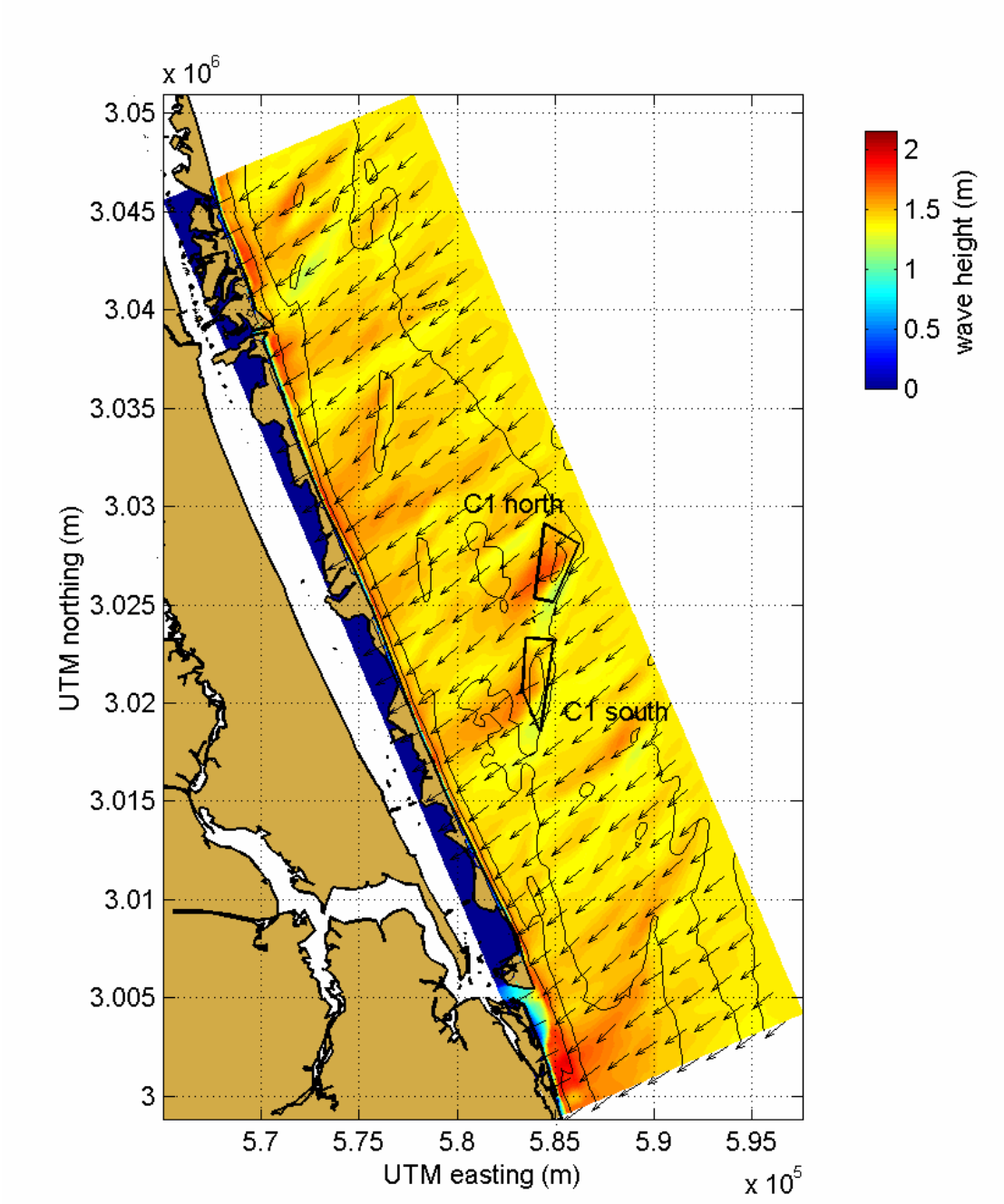

Figure C1-24. STWAVE model output for the borrow sites in Area C, wave Case 7C (H_s = 1.4 m, T_{peak} = 12.3 sec, θ_{peak} = 52 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

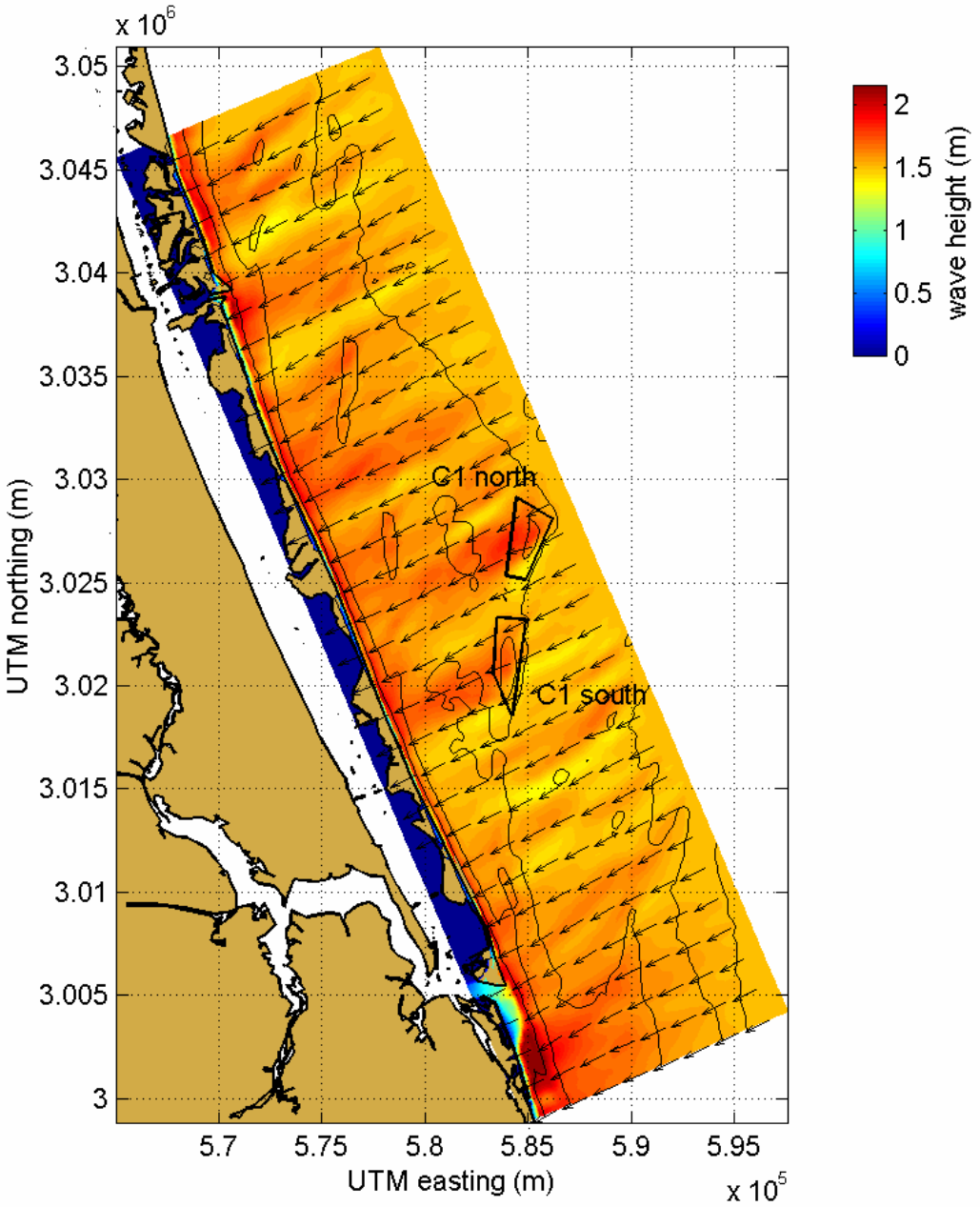

Figure C1-25. STWAVE model output for the borrow sites in Area C, wave Case 8C (H_s = 1.5 m, T_{peak} = 14.0 sec, θ_{peak} = 62 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

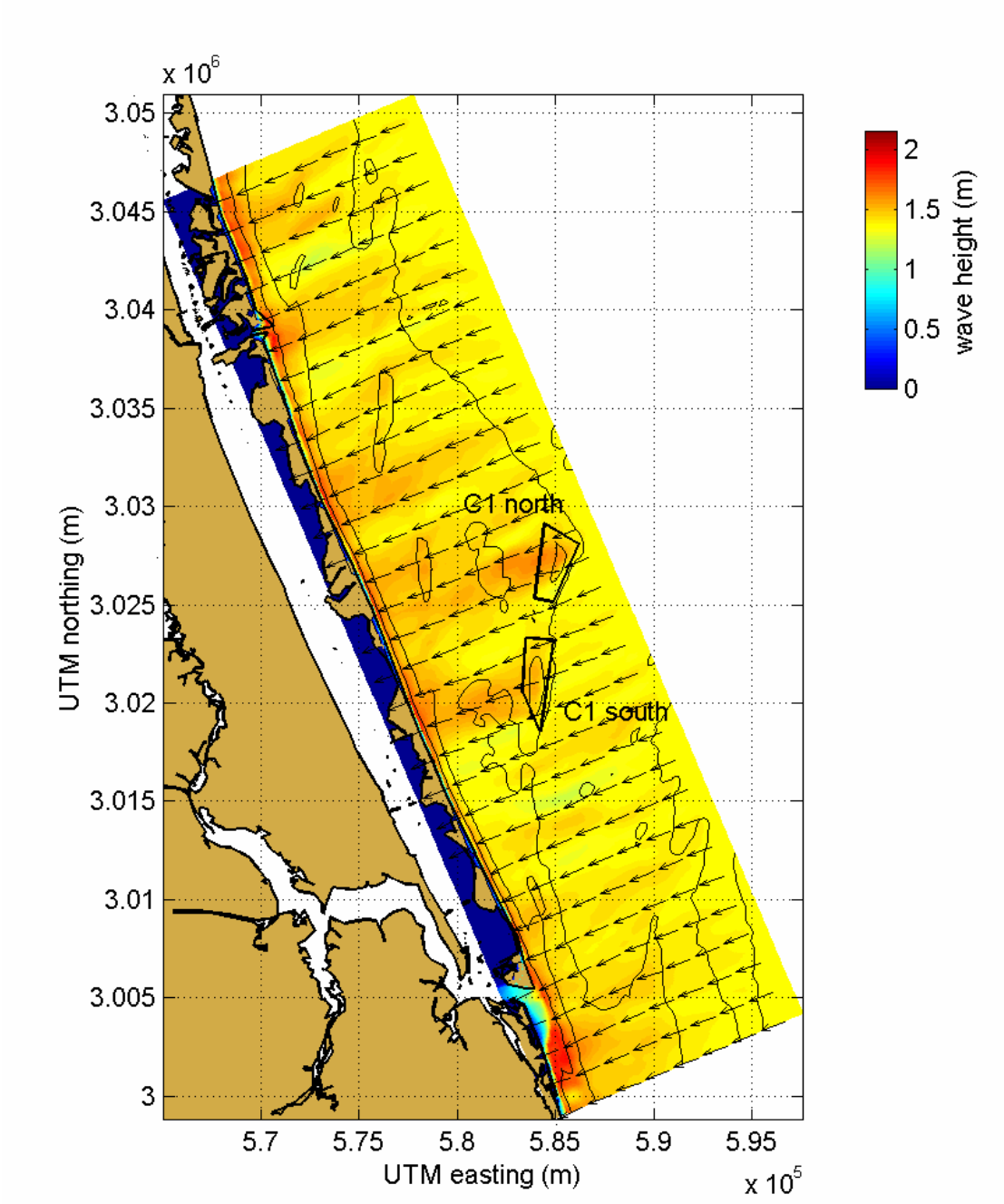

Figure C1-26. STWAVE model output for the borrow sites in Area C, wave Case 9C (H_s = 1.4 m, T_{peak} = 12.1 sec, θ_{peak} = 67 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

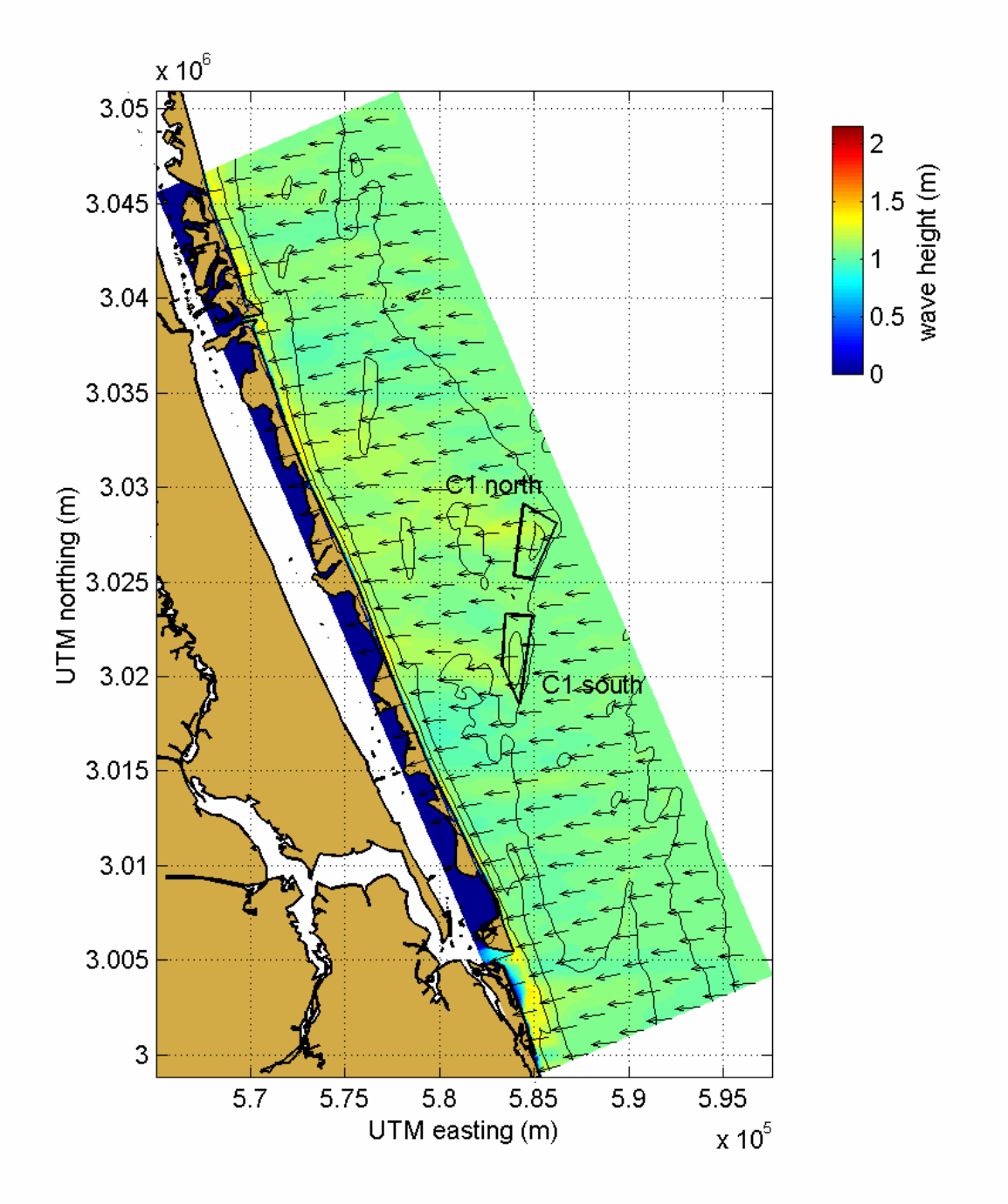

Figure C1-27. STWAVE model output for the borrow sites in Area C, wave Case 10C (H_s = 1.1 m, T_{peak} = 11.1 sec, θ_{peak} = 87 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

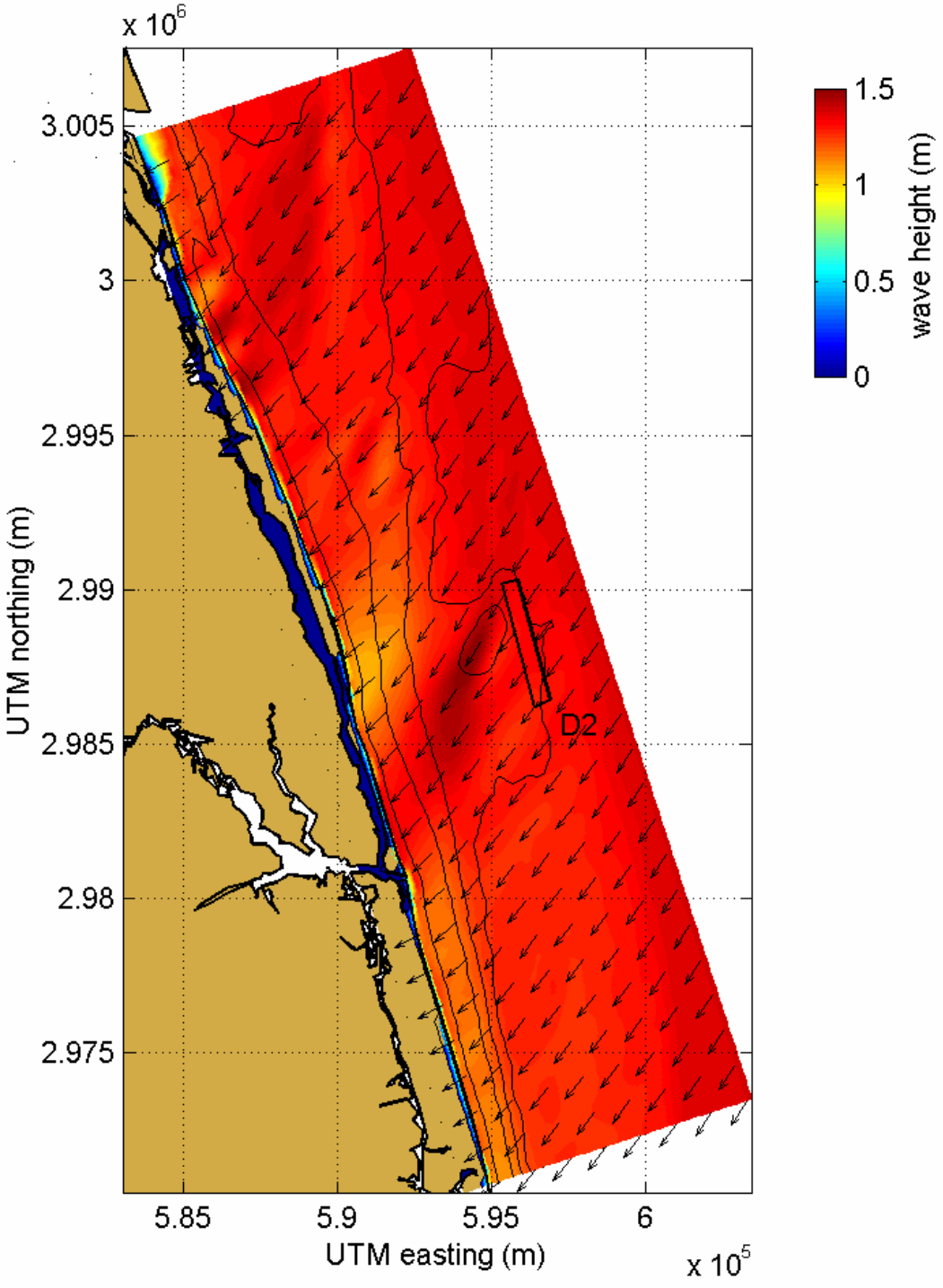

Figure C1-28. STWAVE model output for the borrow site in Area D, wave Case 1D (H_s = 1.4 m, T_{peak} = 6.9 sec, θ_{peak} = 32 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

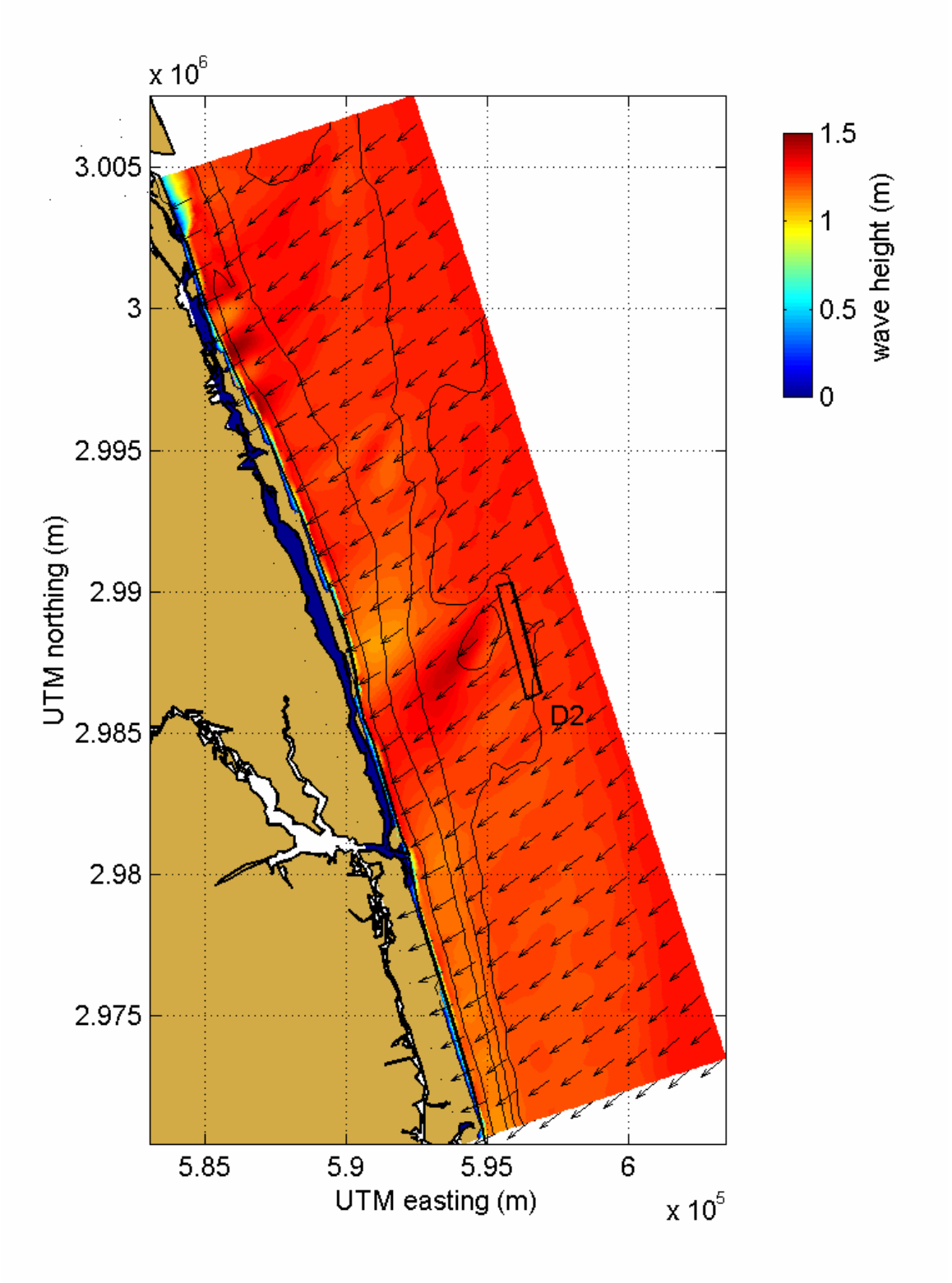

Figure C1-29. STWAVE model output for the borrow site in Area D, wave Case 2D (H_s = 1.3 m, T_{peak} = 7.4 sec, θ_{peak} = 47 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

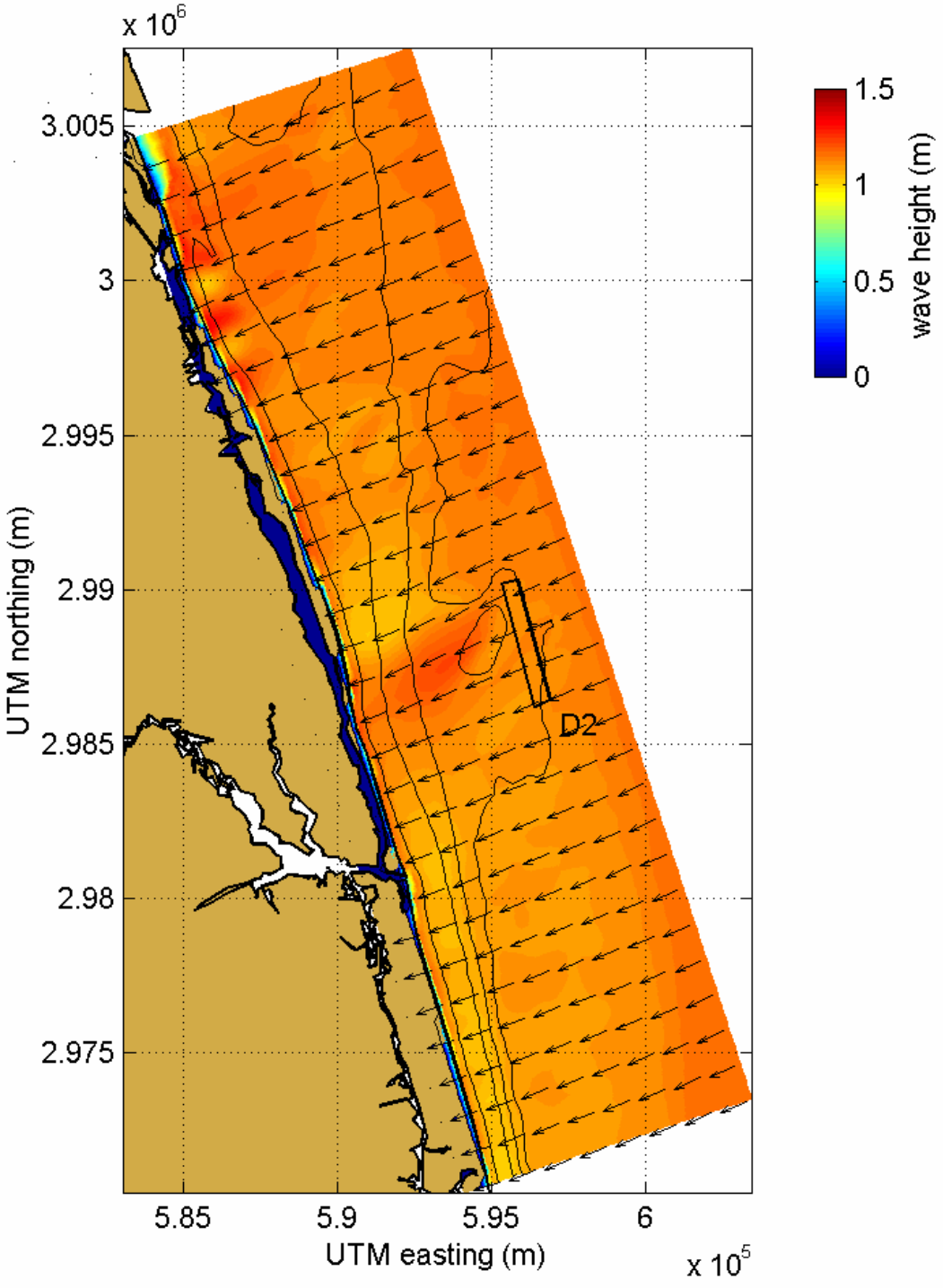

Figure C1-30. STWAVE model output for the borrow site in Area D, wave Case 3D (H_s = 1.2 m, T_{peak} = 7.3 sec, θ_{peak} = 67 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

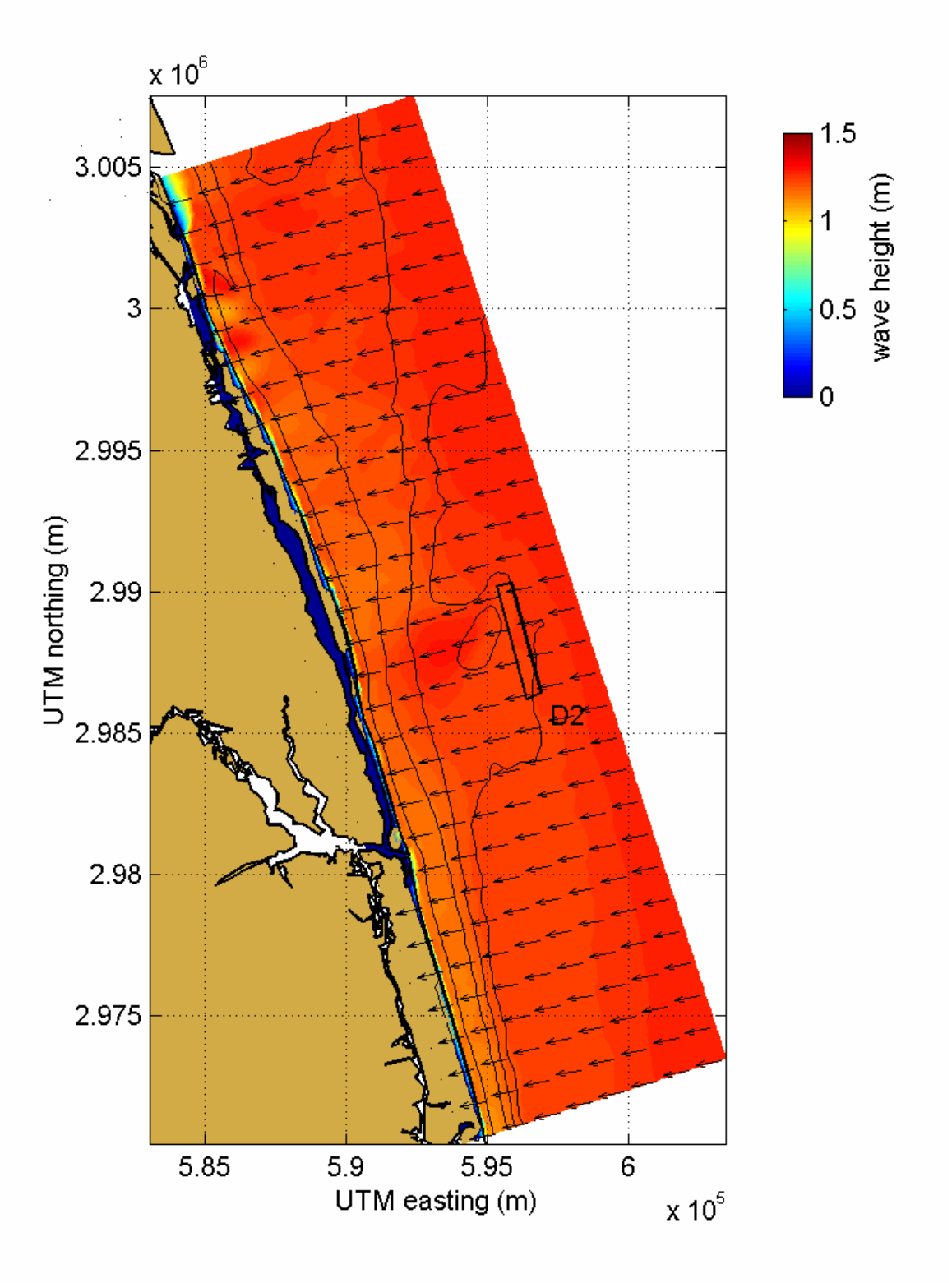

Figure C1-31. STWAVE model output for the borrow site in Area D, wave Case 4D (H_s = 1.3 m, T_{peak} = 5.8 sec, θ_{peak} = 77 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

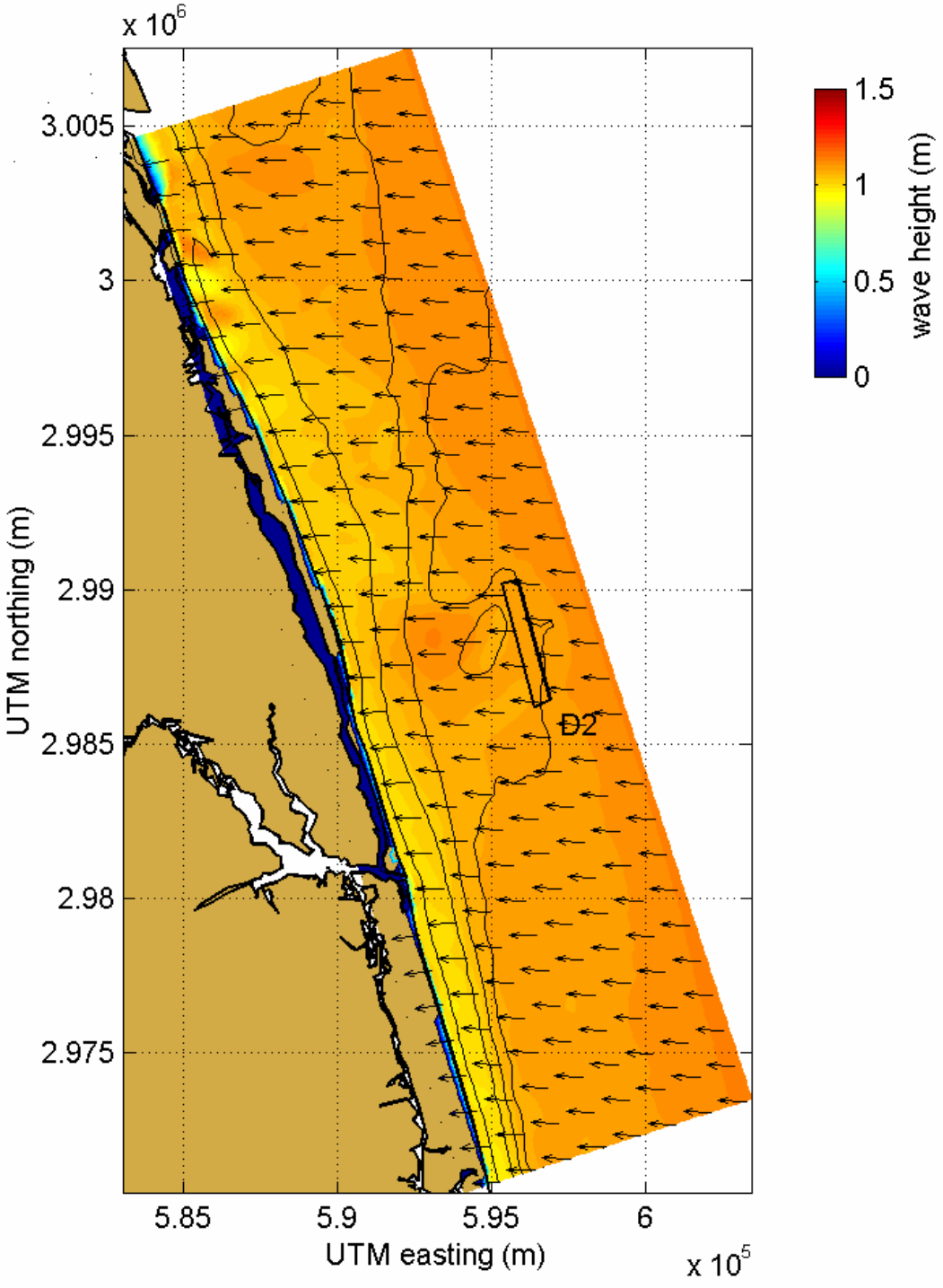

Figure C1-32. STWAVE model output for the borrow site in Area D, wave Case 5D (H_s = 1.2 m, T_{peak} = 5.5 sec, θ_{peak} = 92 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

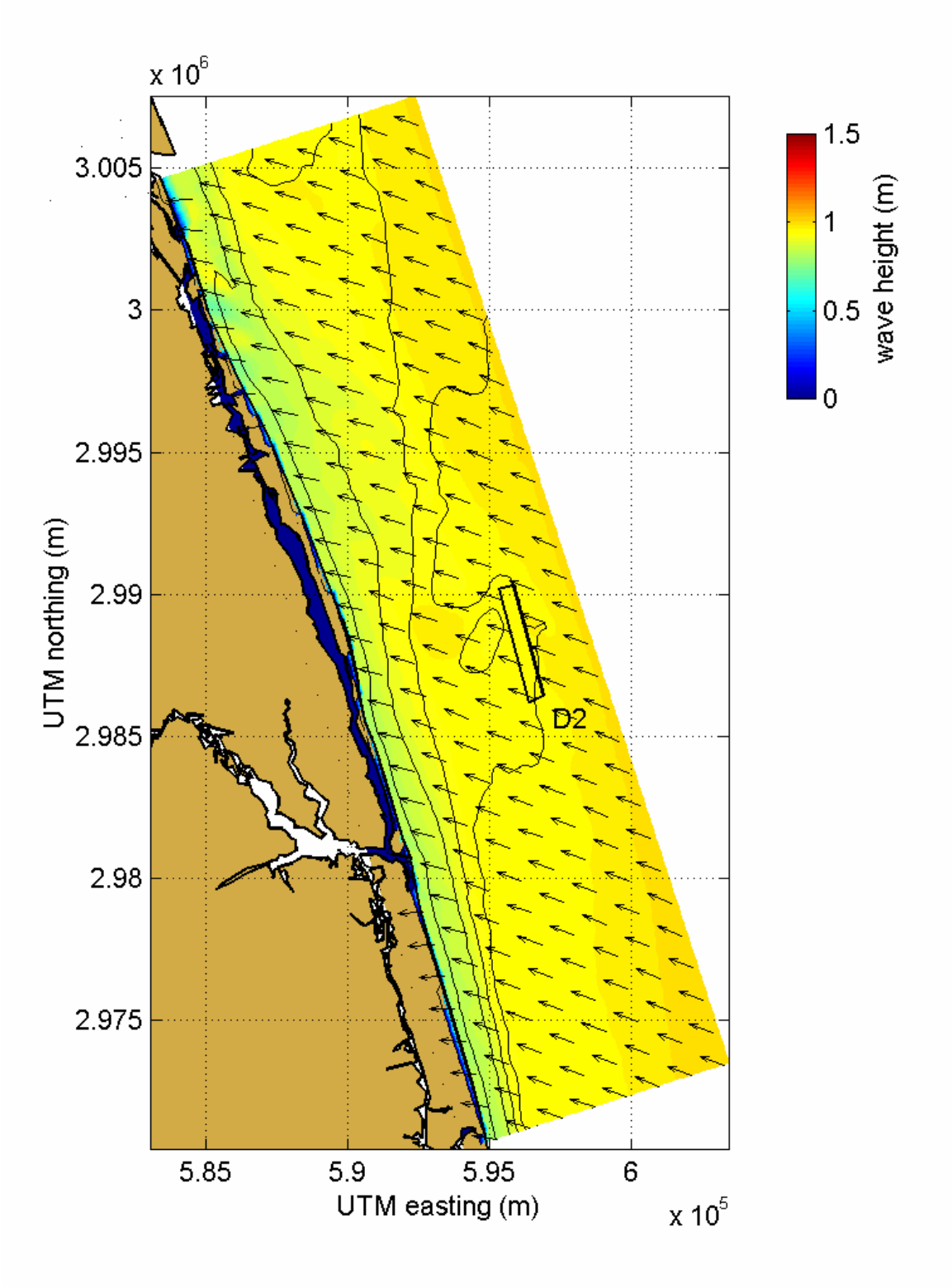

Figure C1-33. STWAVE model output for the borrow site in Area D, wave Case 6D (H_s = 1.1 m, T_{peak} = 4.9 sec, θ_{peak} = 117 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

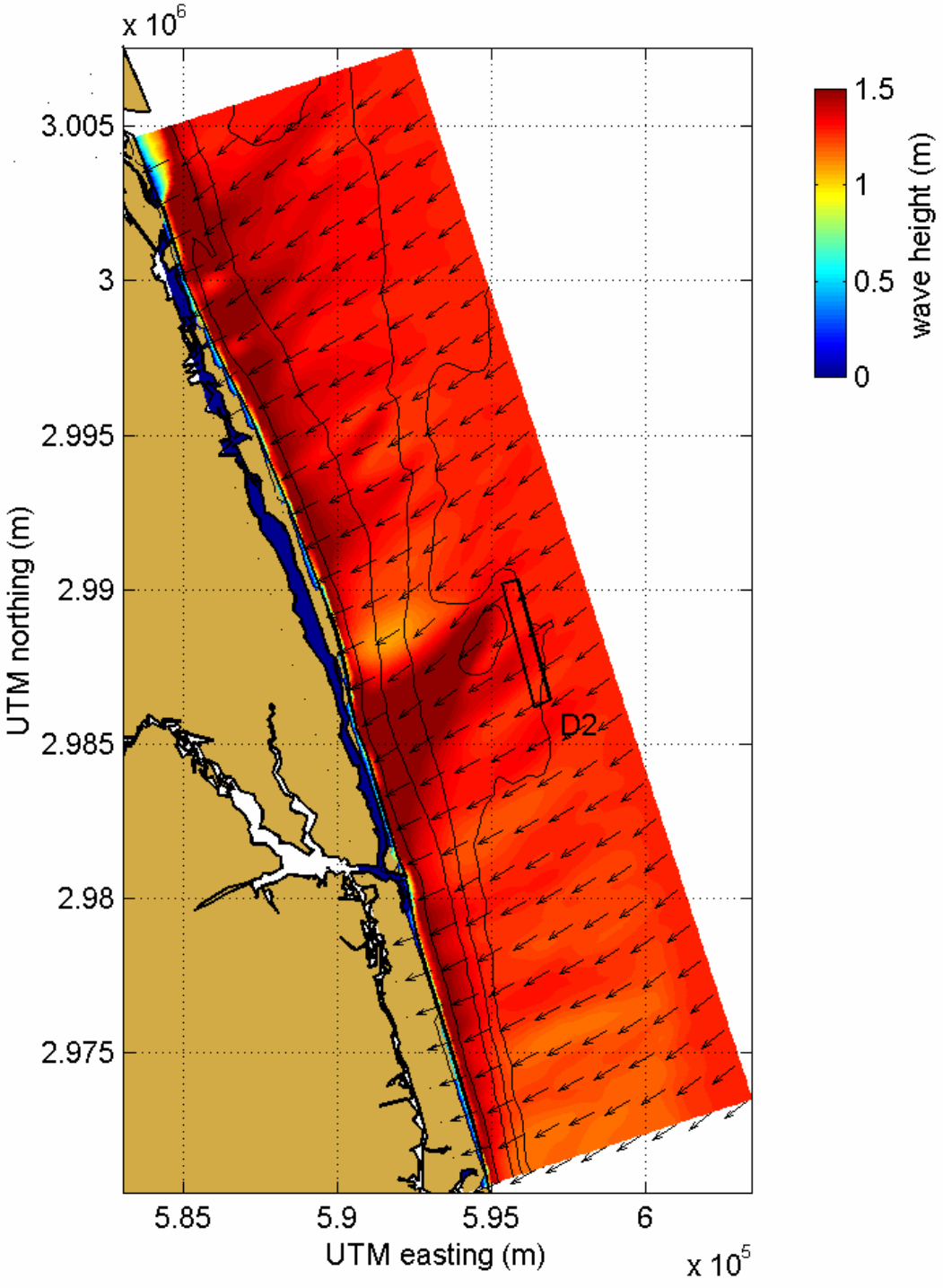

Figure C1-34. STWAVE model output for the borrow site in Area D, wave Case 7D (H_s = 1.3 m, T_{peak} = 12.9 sec, θ_{peak} = 75 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

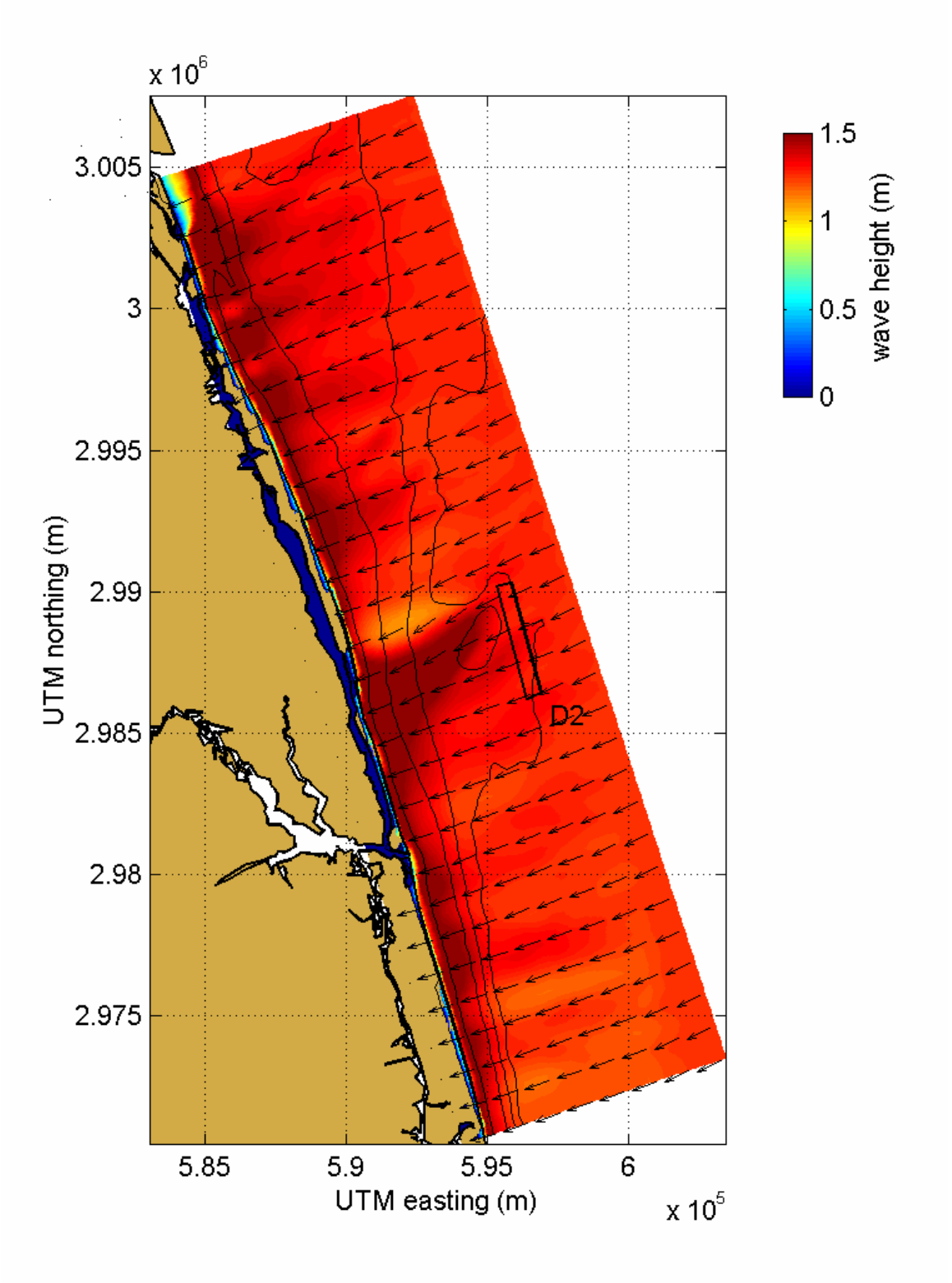

Figure C1-35. STWAVE model output for the borrow site in Area D, wave Case 9D (H_s = 1.3 m, T_{peak} = 13.0 sec, θ_{peak} = 62 deg). Color contours indicate wave height, and vectors show mean direction of wave propagation.

C2. EXISTING CONDITIONS AND POST-DREDGE DIFFERENCE PLOTS

Presented in this appendix are wave height modifications caused by the offshore sand mining of various potential borrow sites.

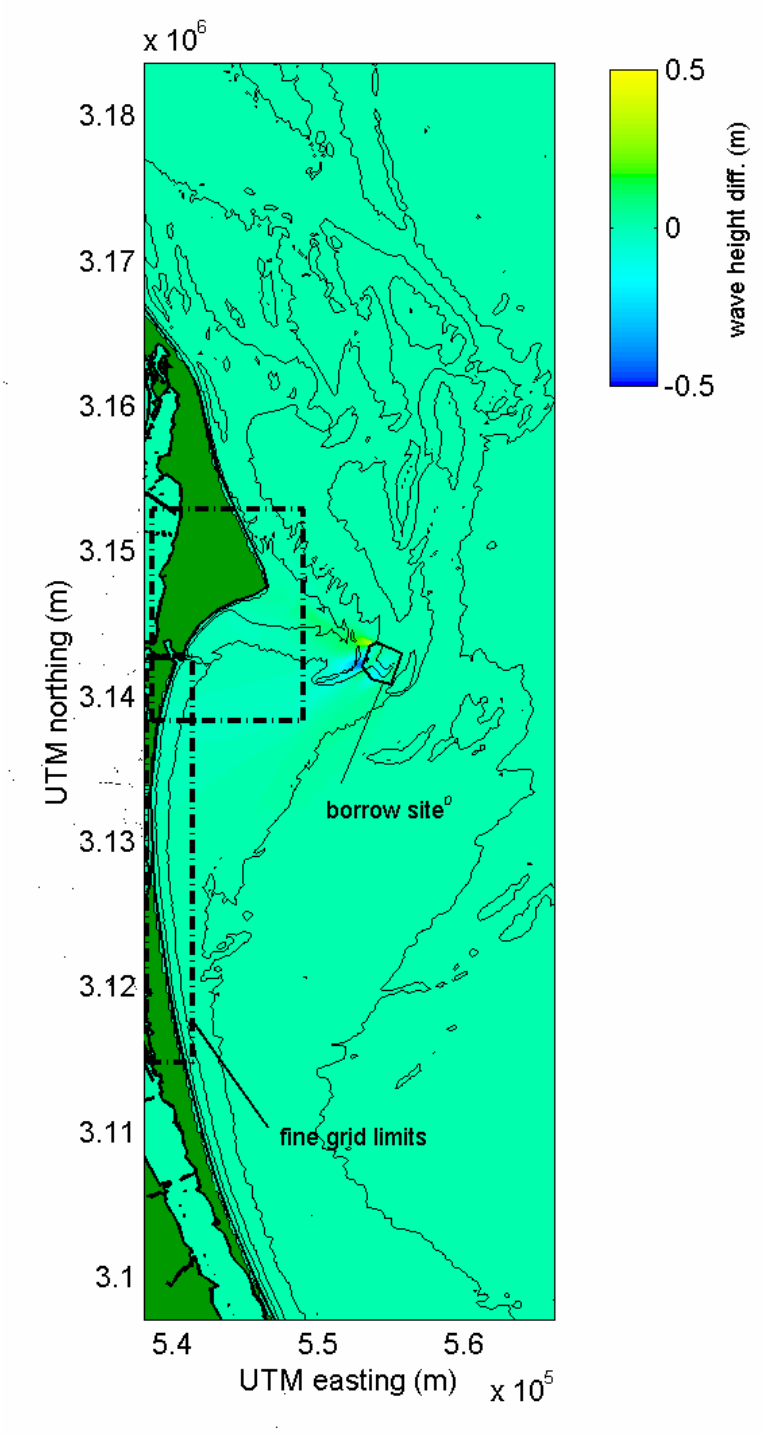

Figure C2-1. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area A, wave Case 1A (H_s = 1.7 m, T_{peak} = 7.7 sec, θ_{peak} = 55 deg) with borrow site A1. Color contours indicate differences in wave height.

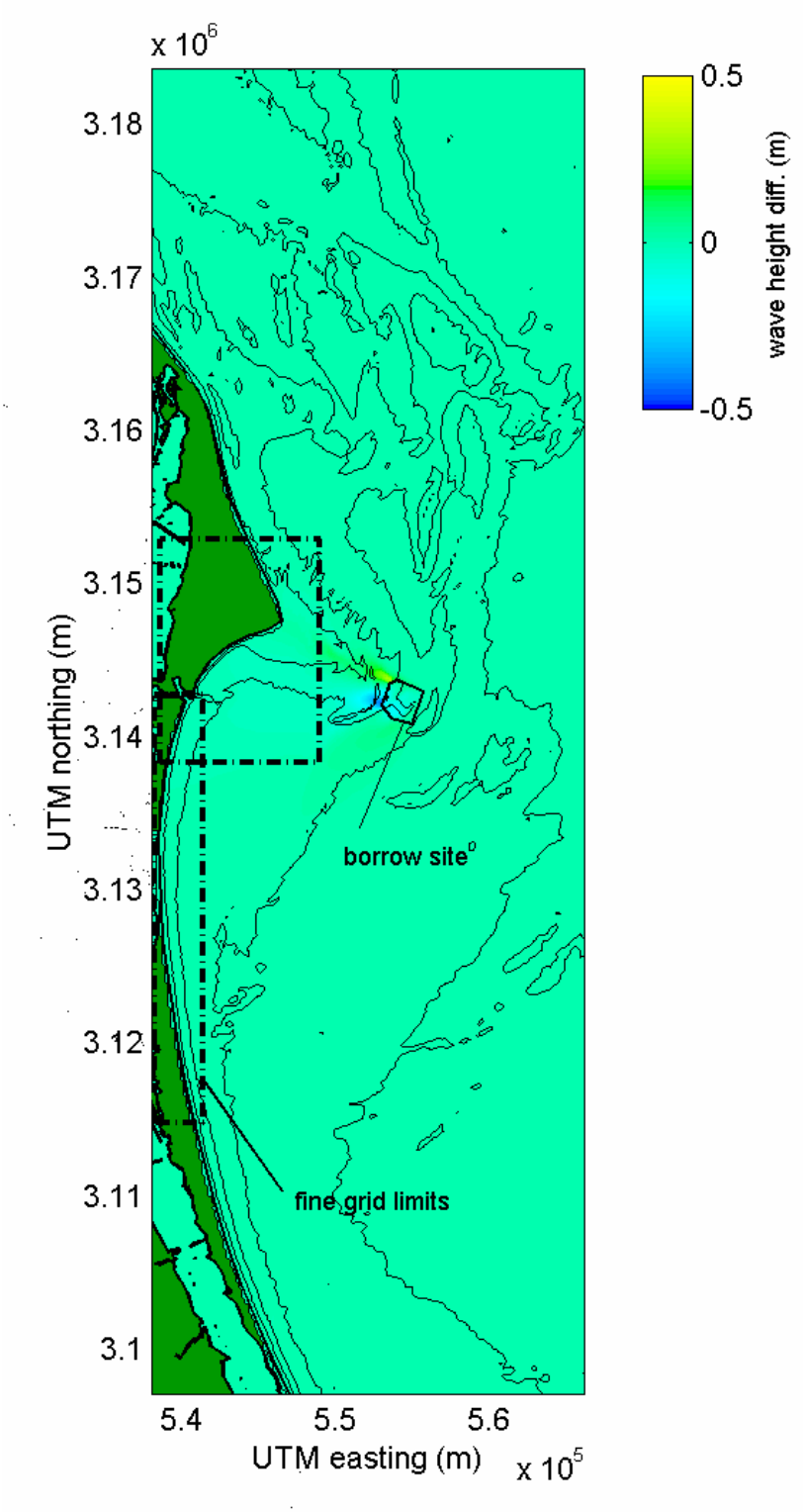

Figure C2-2. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area A, wave Case 2A (H_s = 1.4 m, T_{peak} = 7.7 sec, θ_{peak} = 80 deg), with borrow site A1. Color contours indicate differences in wave height.

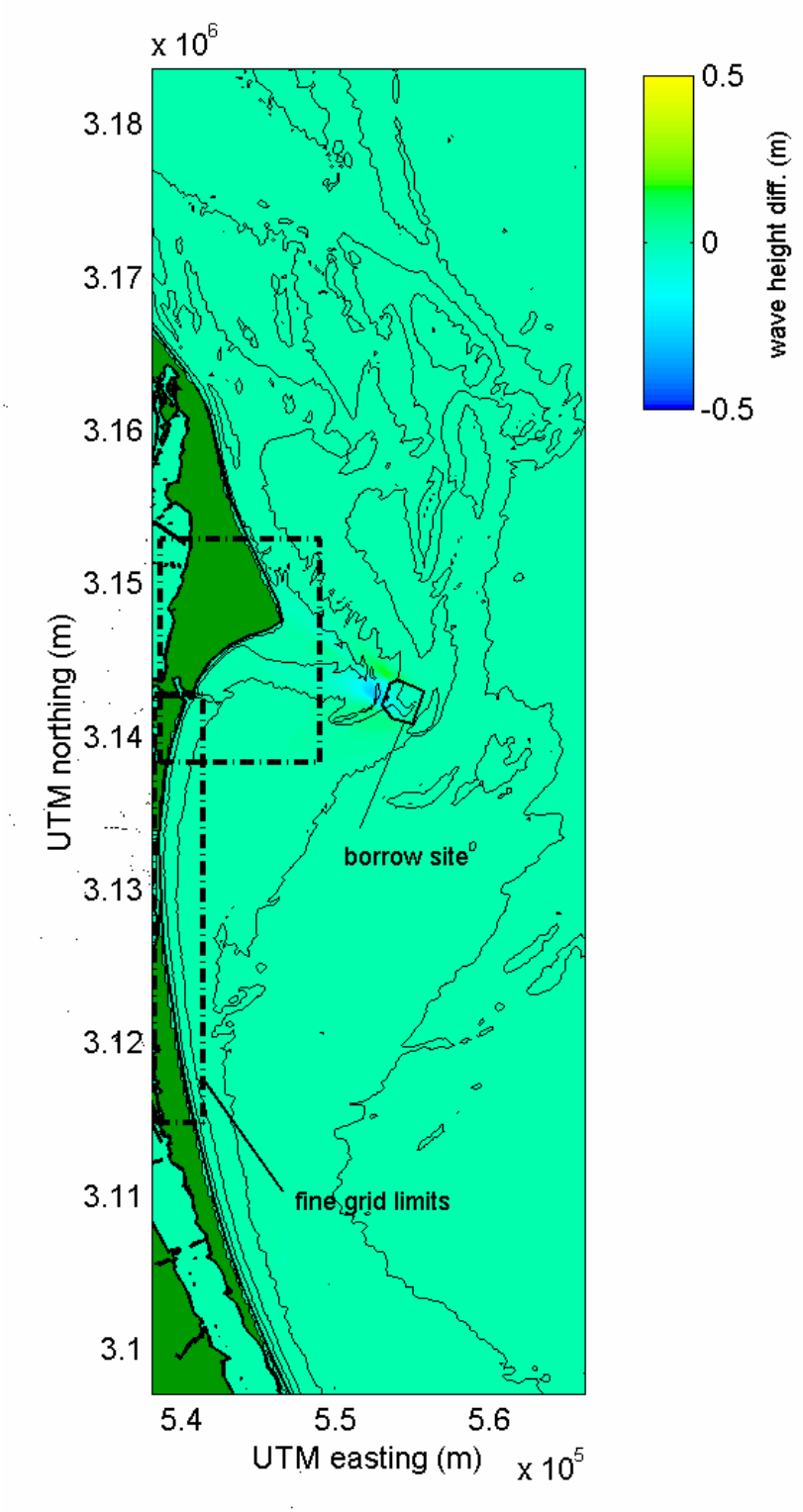

Figure C2-3. Wave height change between existing and post-dredging (Δ = H_{post}-$H_{existing}$) conditions for the borrow site in Area A, wave Case 3A (H_s = 1.0 m, T_{peak} = 7.7 sec, θ_{peak} = 100 deg), with borrow site A1. Color contours indicate differences in wave height.

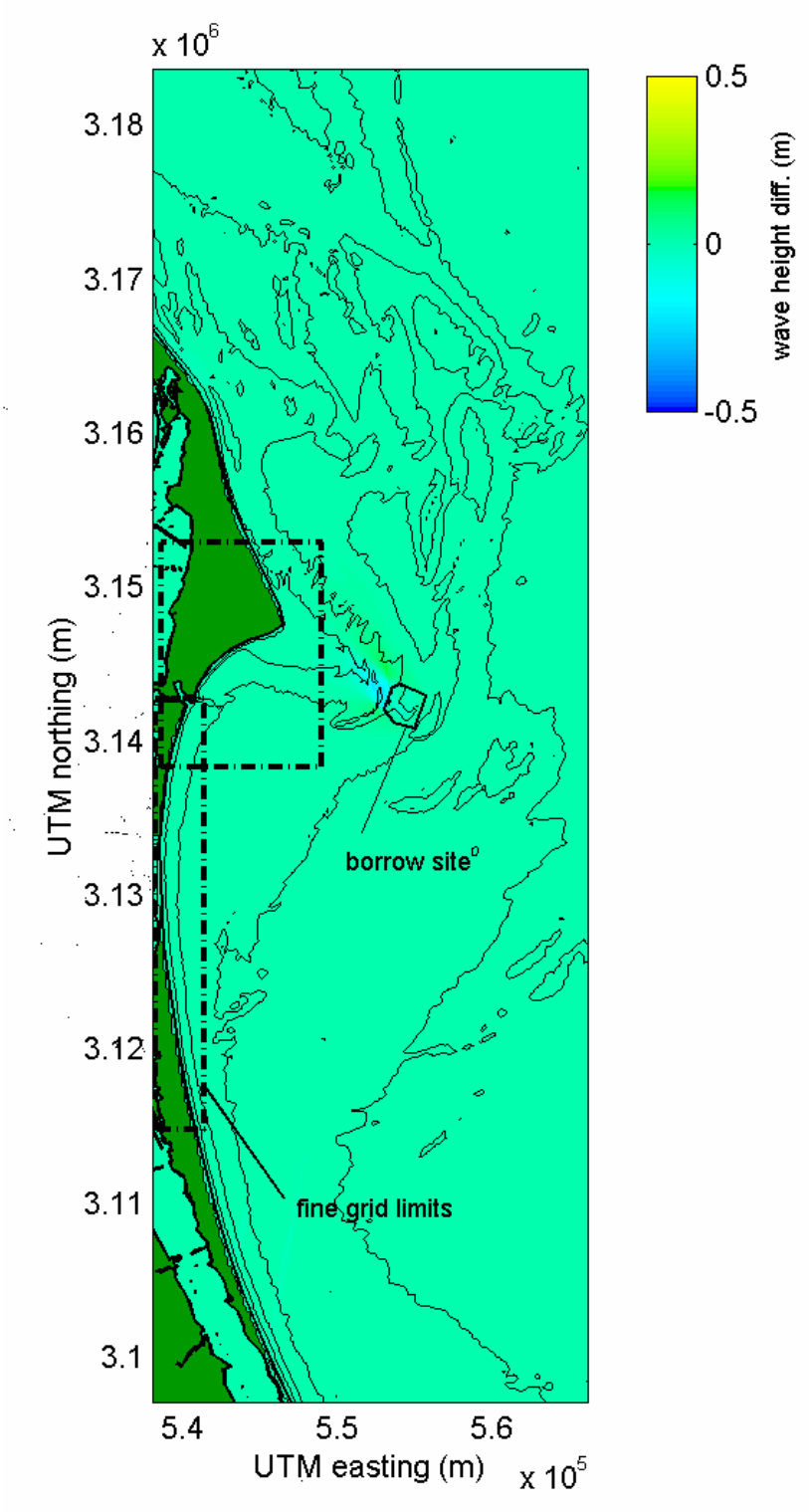

Figure C2-4. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area A, wave Case 4A (H_s = 1.5 m, T_{peak} = 6.3 sec, θ_{peak} = 130 deg), with borrow site A1. Color contours indicate differences in wave height.

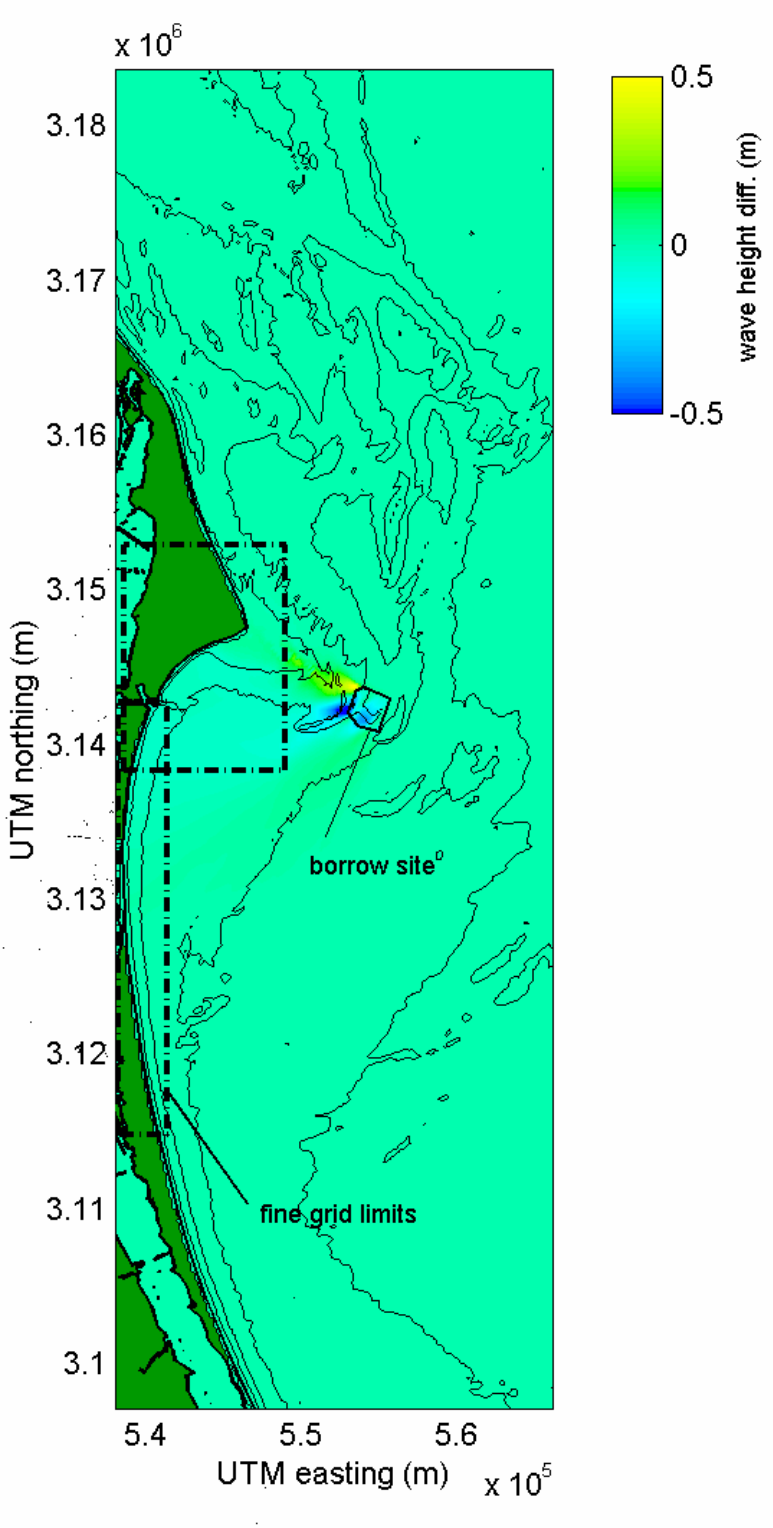

Figure C2-5. Wave height change between existing and post-dredging (Δ = H_{post}-$H_{existing}$) conditions for the borrow site in Area A, wave Case 5A (H_s = 1.7 m, T_{peak} = 12.5 sec, θ_{peak} = 60 deg), with borrow site A1. Color contours indicate differences in wave height.

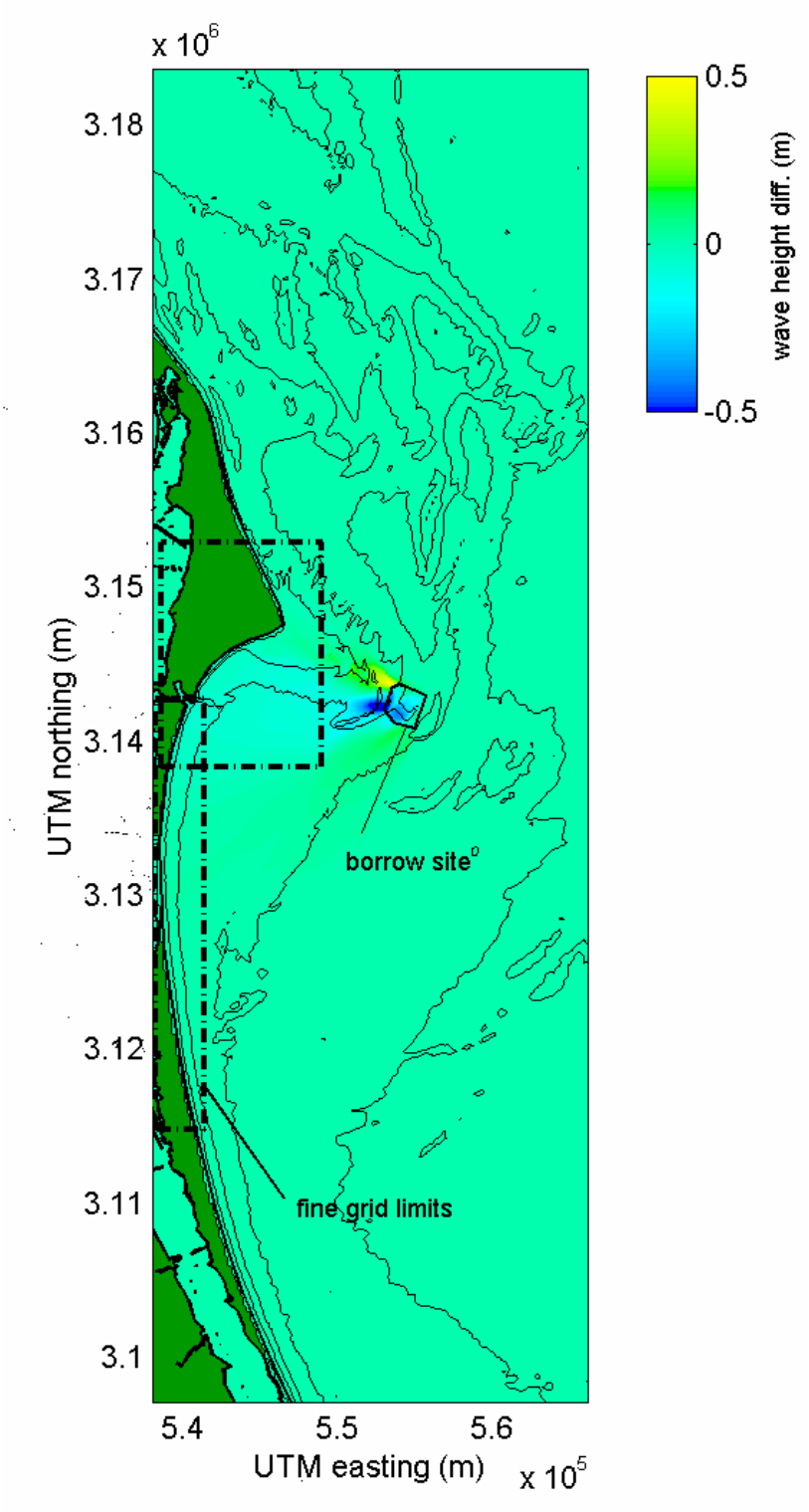

Figure C2-6. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area A, wave Case 6A (H_s = 1.6 m, T_{peak} = 14.3 sec, θ_{peak} = 65 deg), with borrow site A1. Color contours indicate differences in wave height.

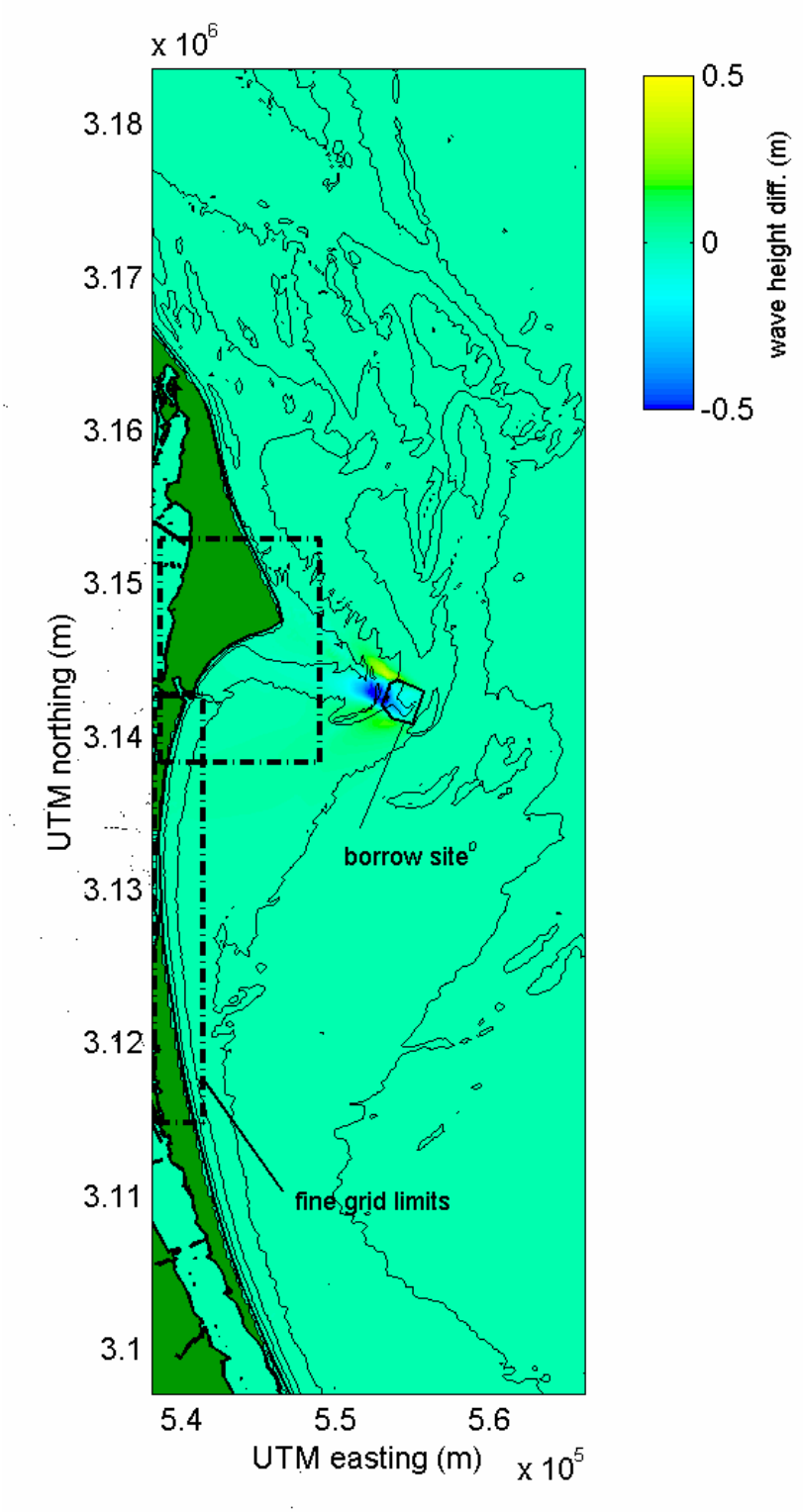

Figure C2-7. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area A, wave Case 7A (H_s = 1.5 m, T_{peak} = 11.1 sec, θ_{peak} = 100 deg), with borrow site A1. Color contours indicate differences in wave height.

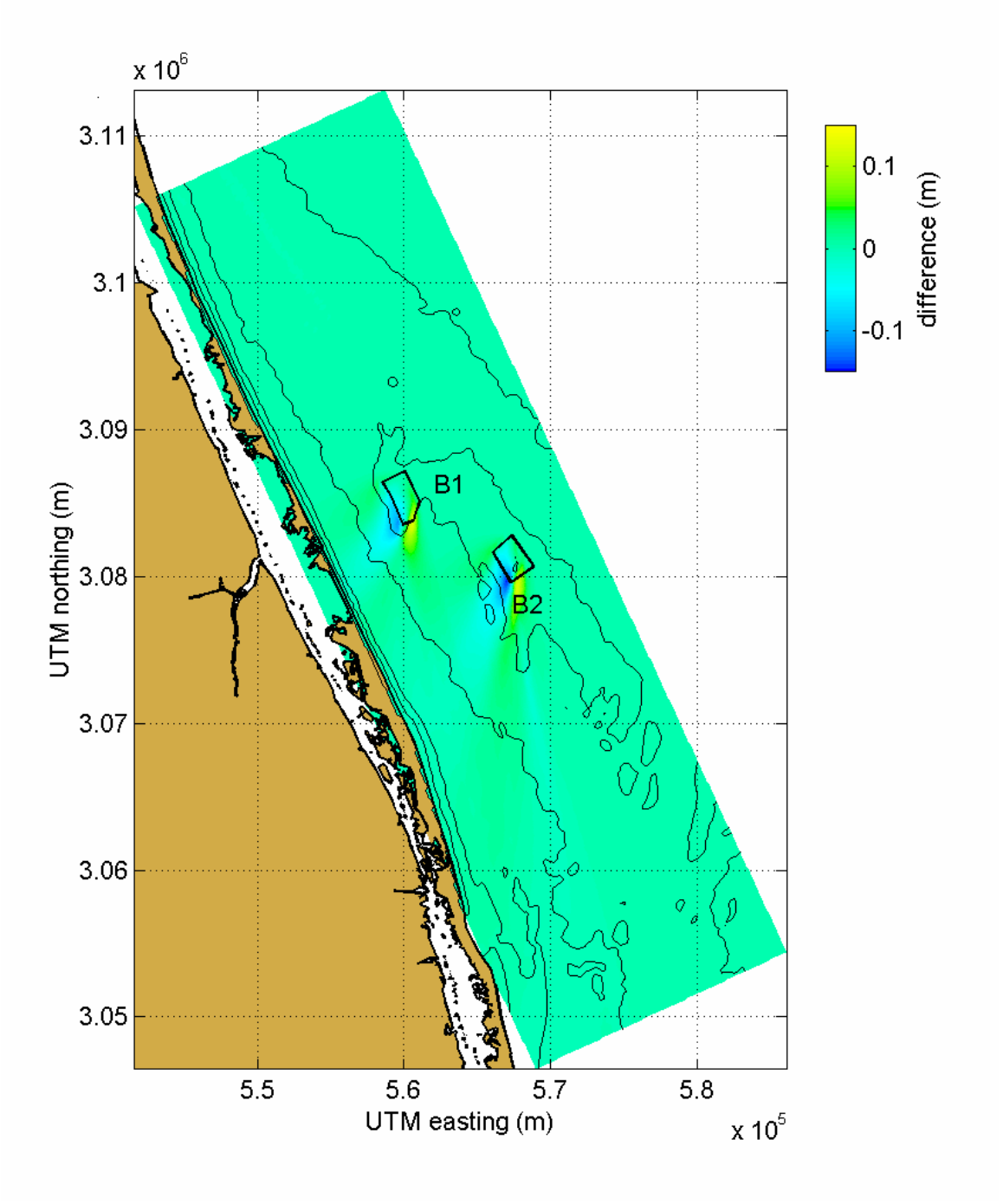

Figure C2-8. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 1B (H_s = 1.9 m, T_{peak} = 6.9 sec, θ_{peak} = 25 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

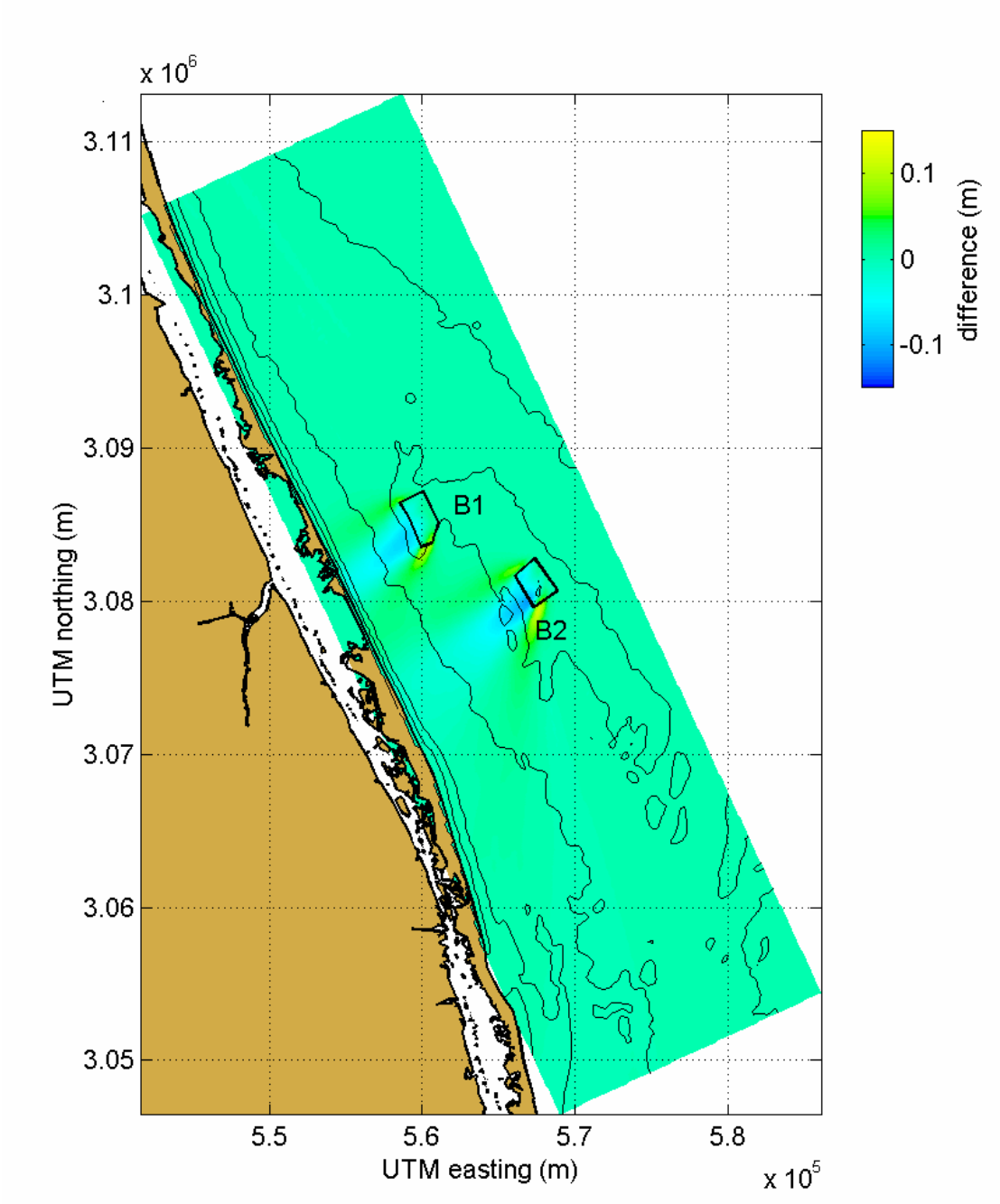

Figure C2-9. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 2B (H_s = 1.8 m, T_{peak} = 7.6 sec, θ_{peak} = 45 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

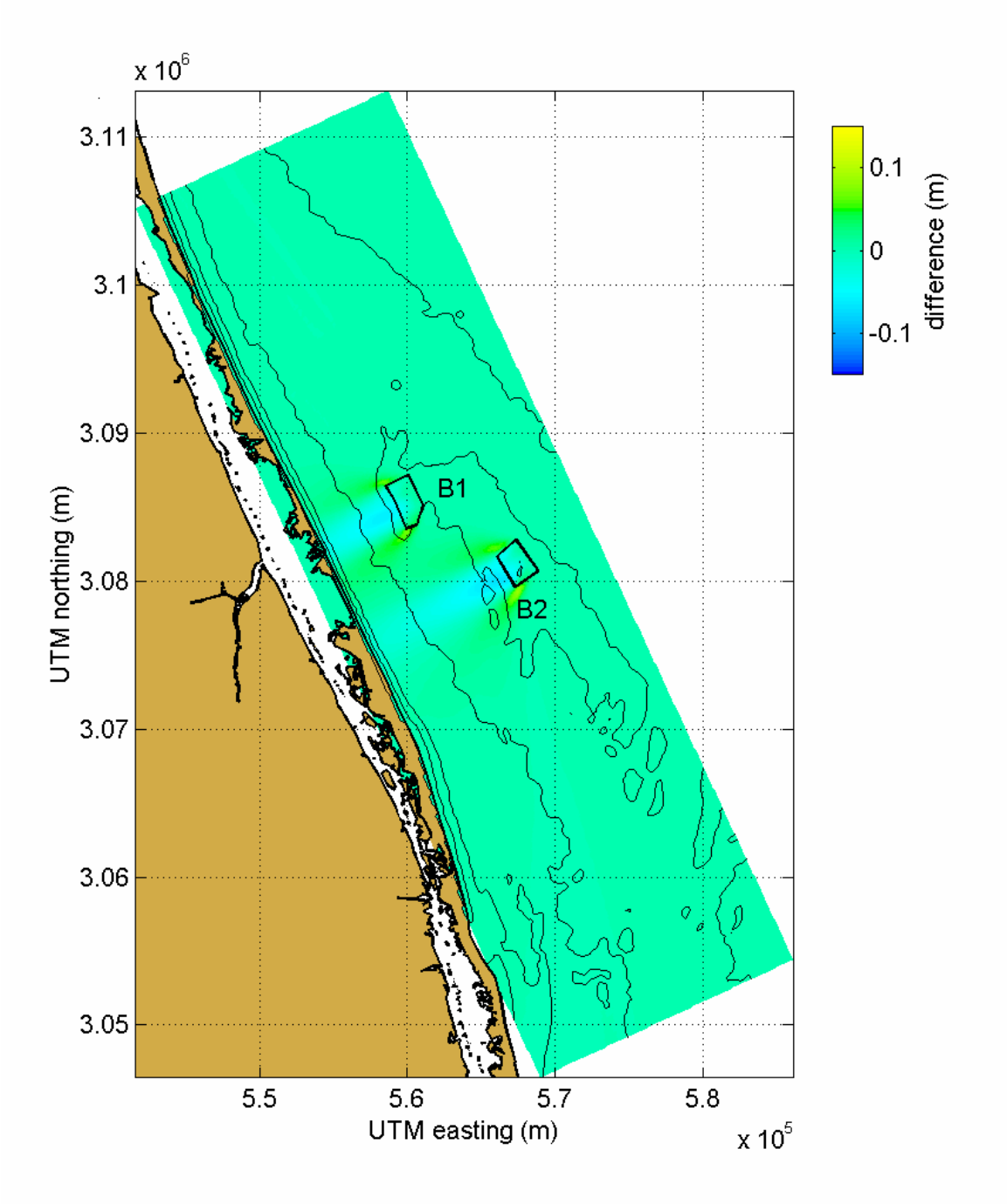

Figure C2-10. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 3B (H_s = 1.6 m, T_{peak} = 7.7 sec, θ_{peak} = 60 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

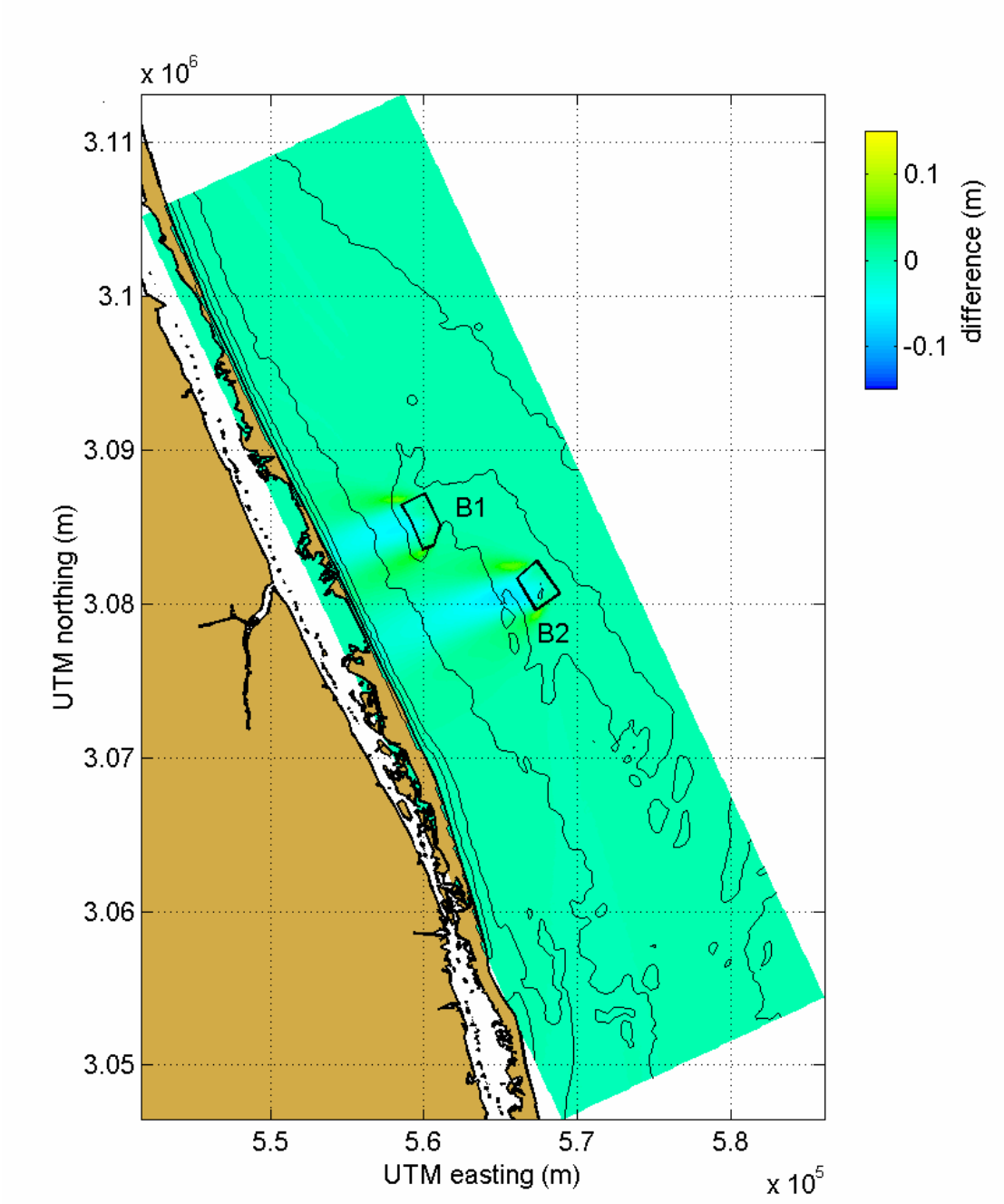

Figure C2-11. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 4B (H_s = 1.5 m, T_{peak} = 7.7 sec, θ_{peak} = 70 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

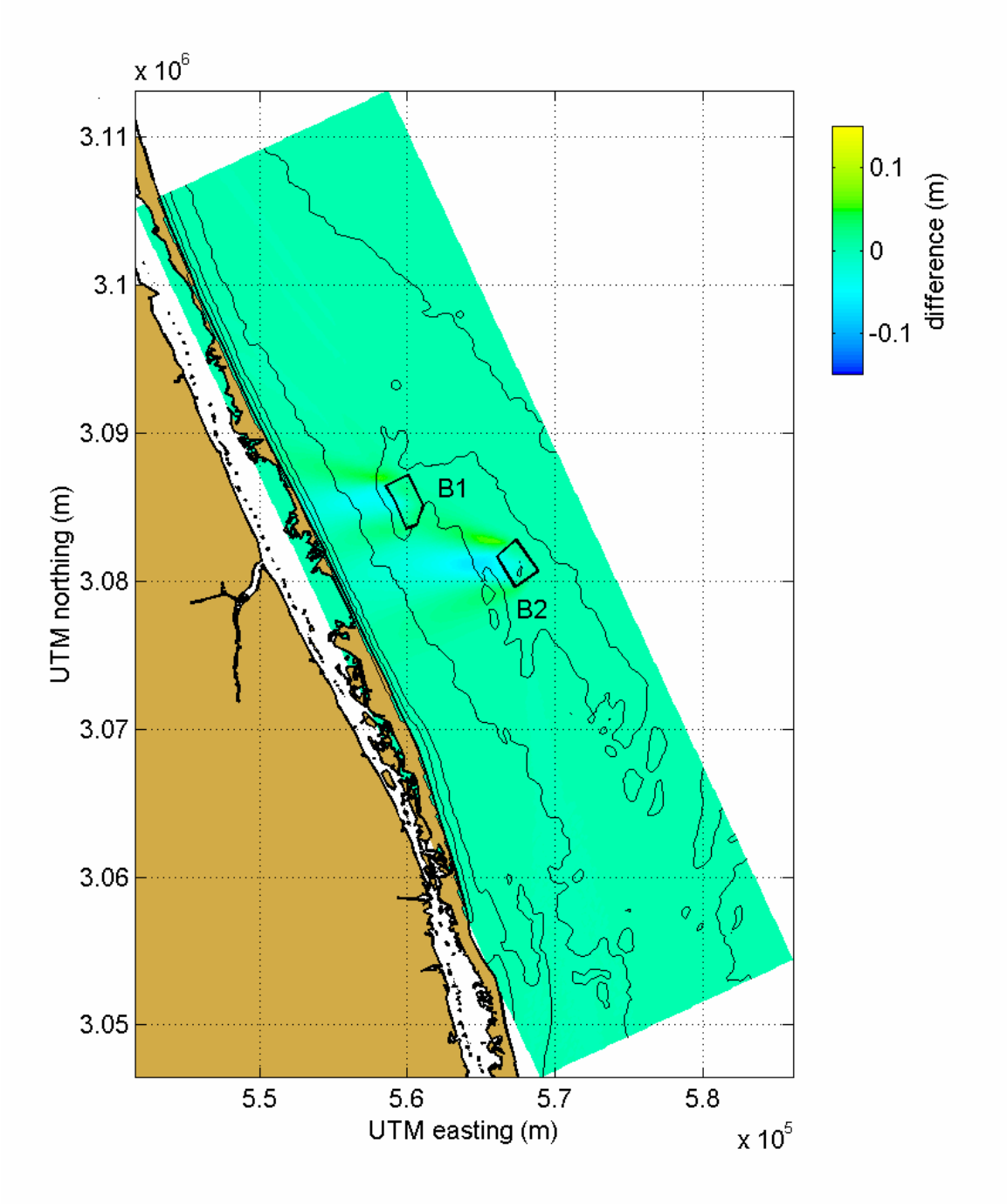

Figure C2-12. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 5B (H_s = 1.1 m, T_{peak} = 7.7 sec, θ_{peak} = 90 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

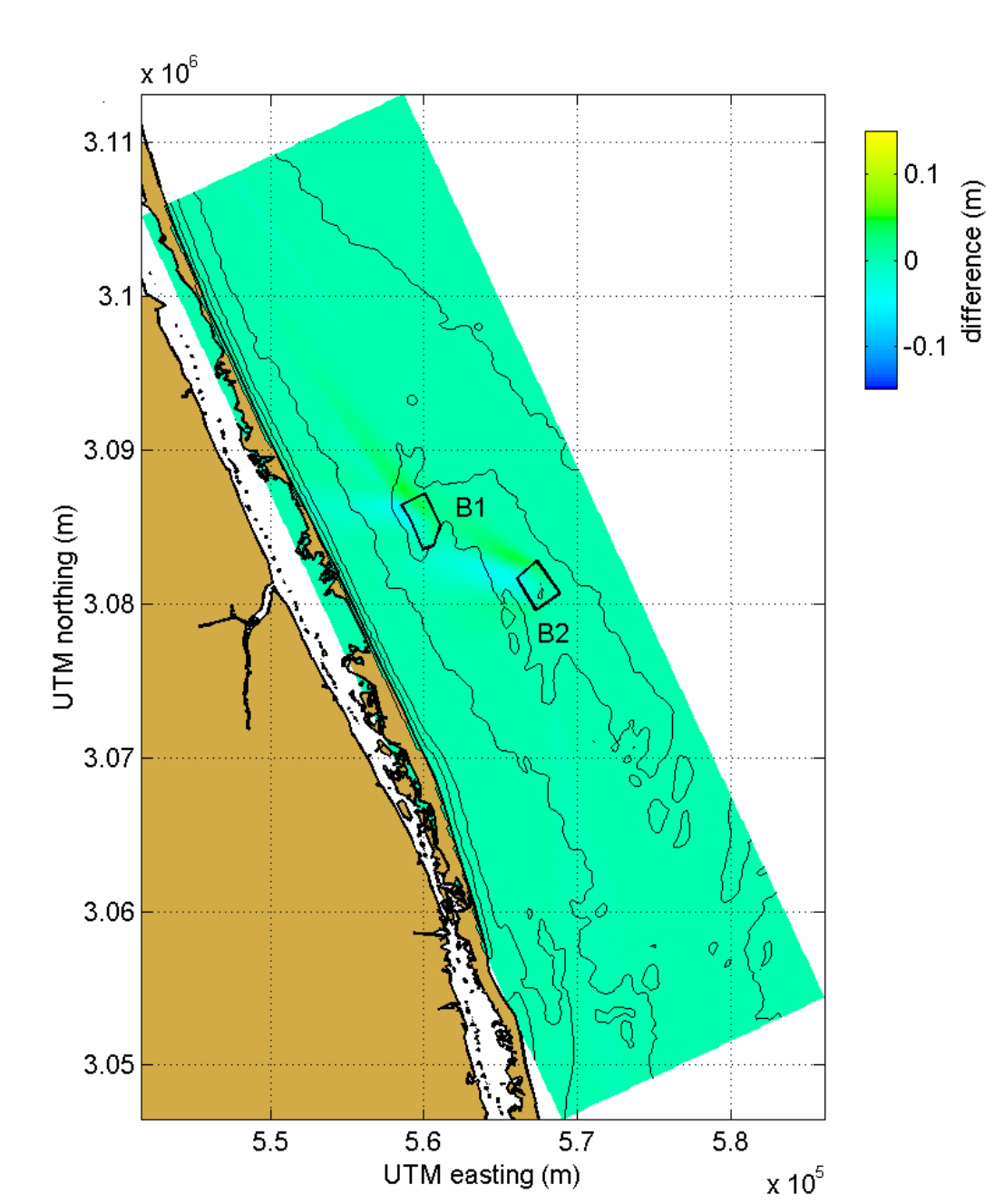

Figure C2-13. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 6B (H_s = 1.1 m, T_{peak} = 6.9 sec, θ_{peak} = 105 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

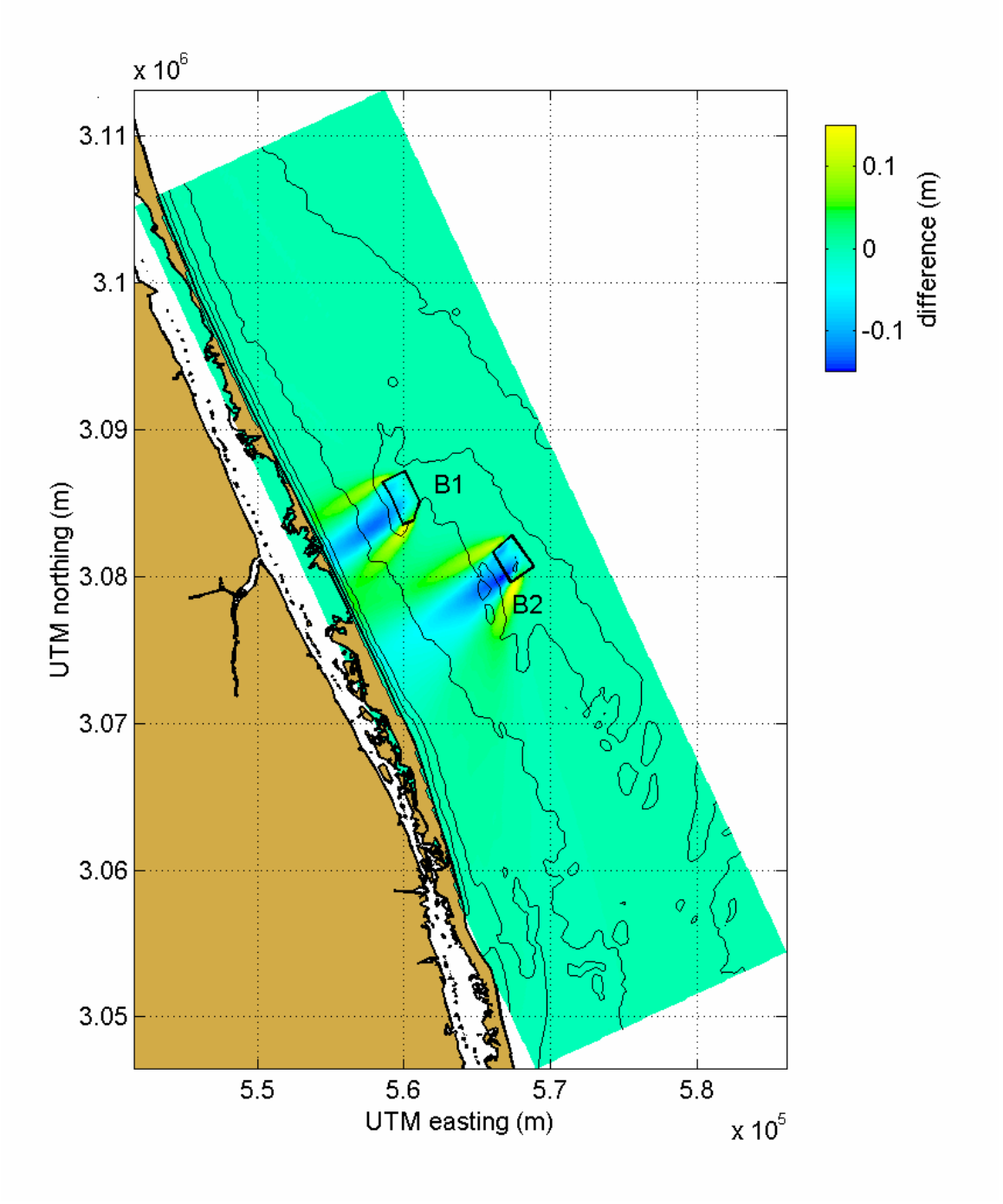

Figure C2-14. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 7B (H_s = 1.7 m, T_{peak} = 11.4 sec, θ_{peak} = 50 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

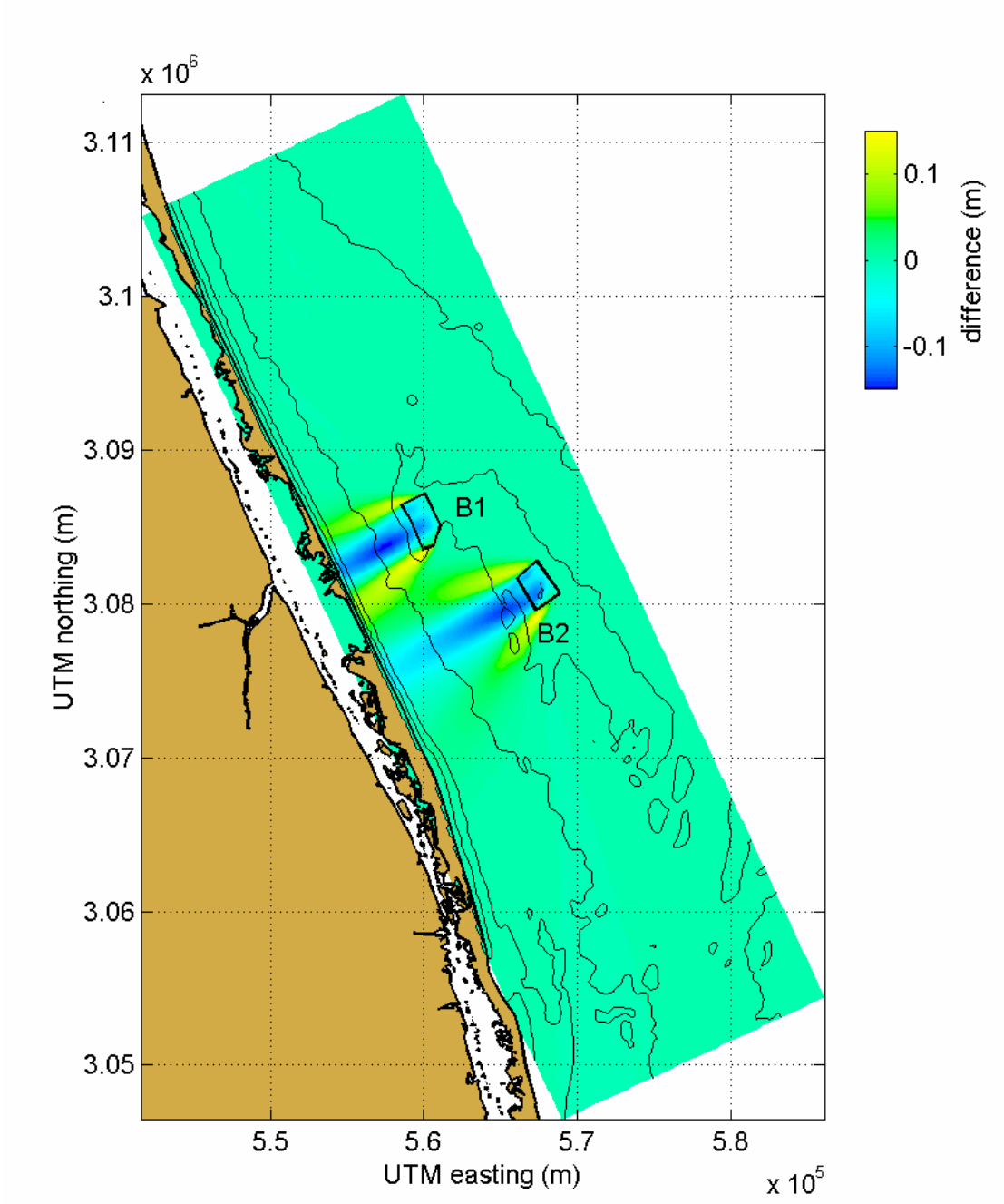

Figure C2-15. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 8B (H_s = 1.7 m, T_{peak} = 13.9 sec, θ_{peak} = 60 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

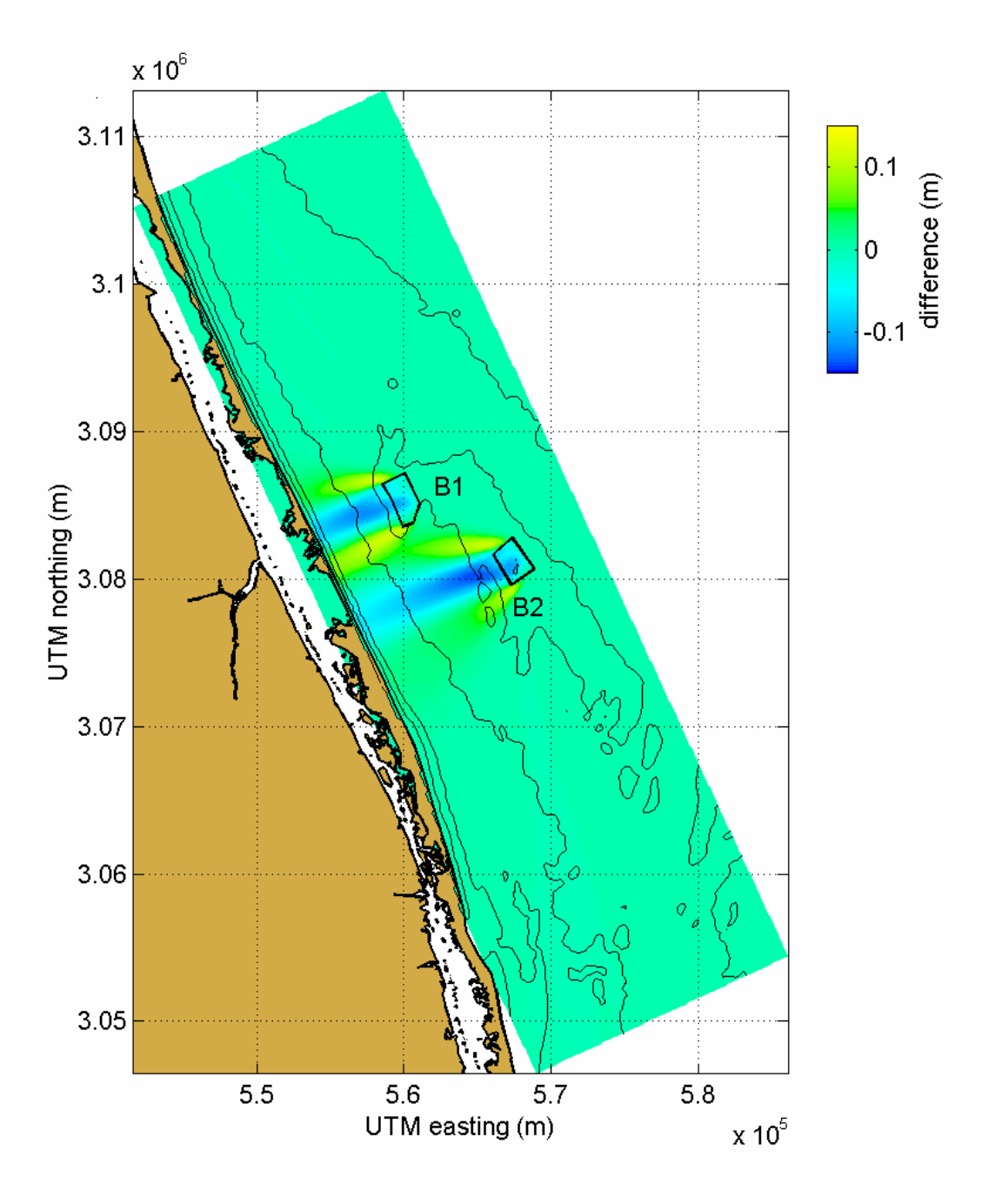

Figure C2-16. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 9B (H_s = 1.7 m, T_{peak} = 12.4c, θ_{peak} = 70 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

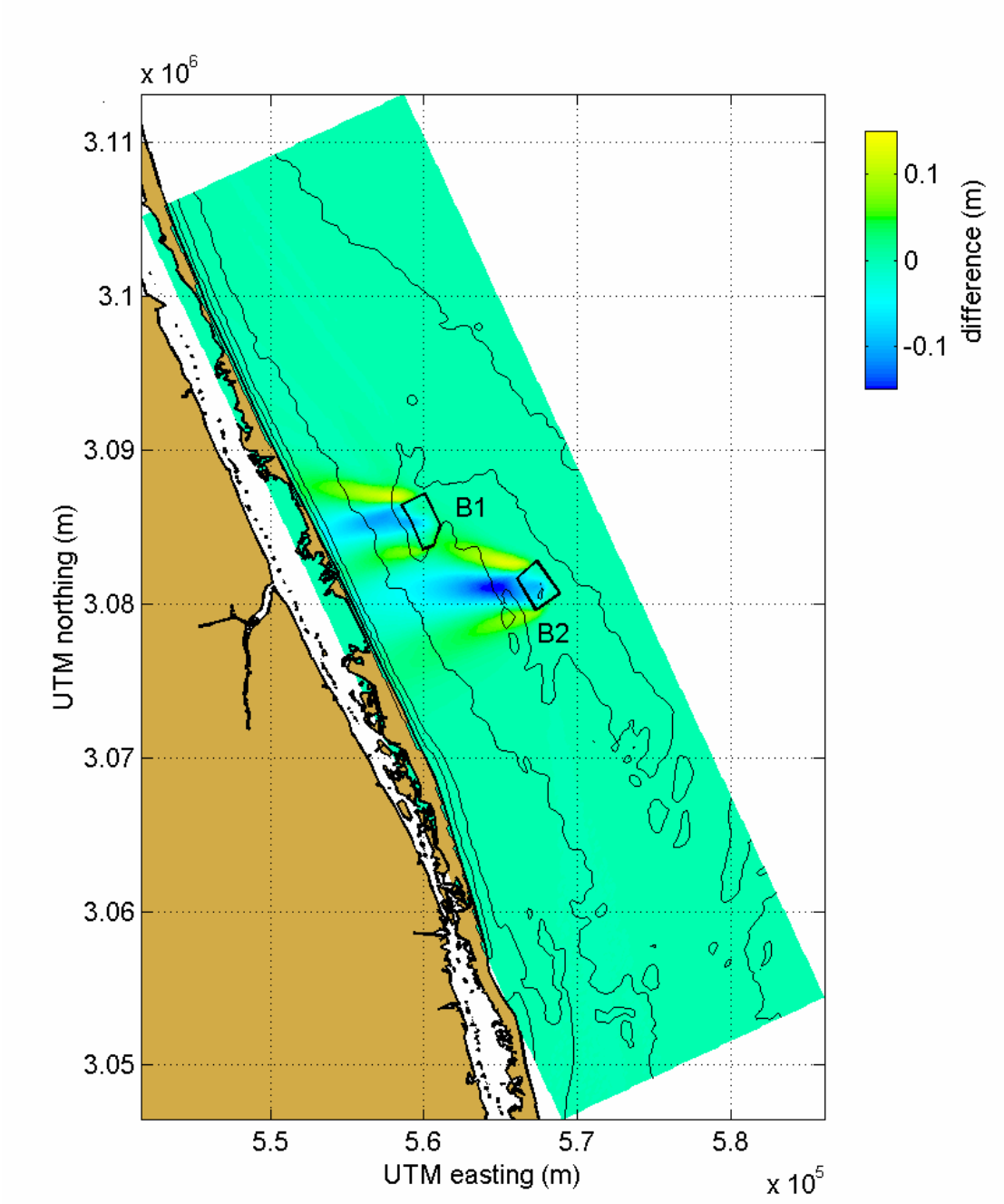

Figure C2-17. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area B, wave Case 10B (H_s = 1.7m, T_{peak} = 10.8, θ_{peak} = 90 deg), with borrow sites B1 and B2. Color contours indicate differences in wave height.

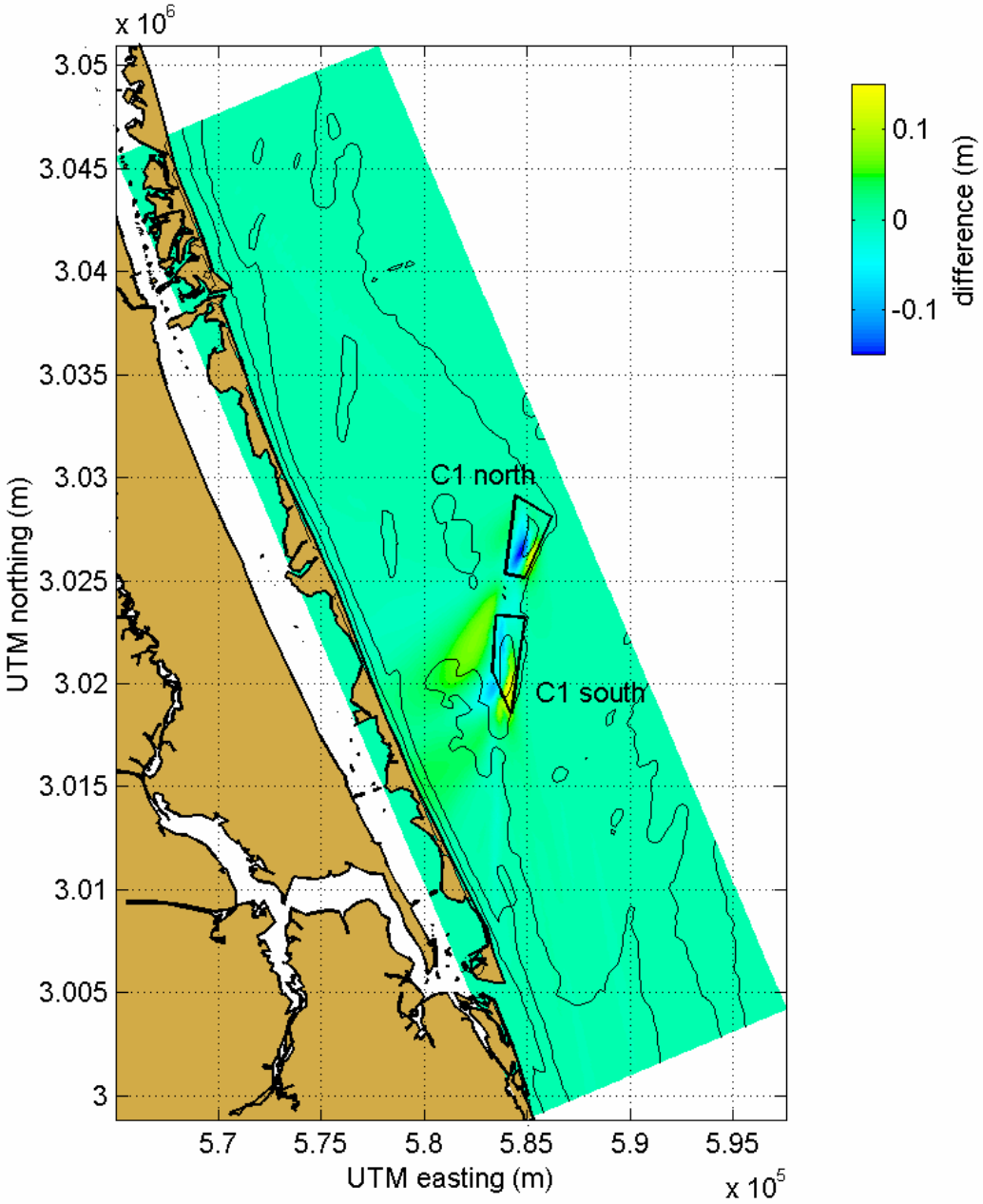

Figure C2-18. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 1C (H_s = 1.6 m, T_{peak} = 6.8 sec, θ_{peak} = 32 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

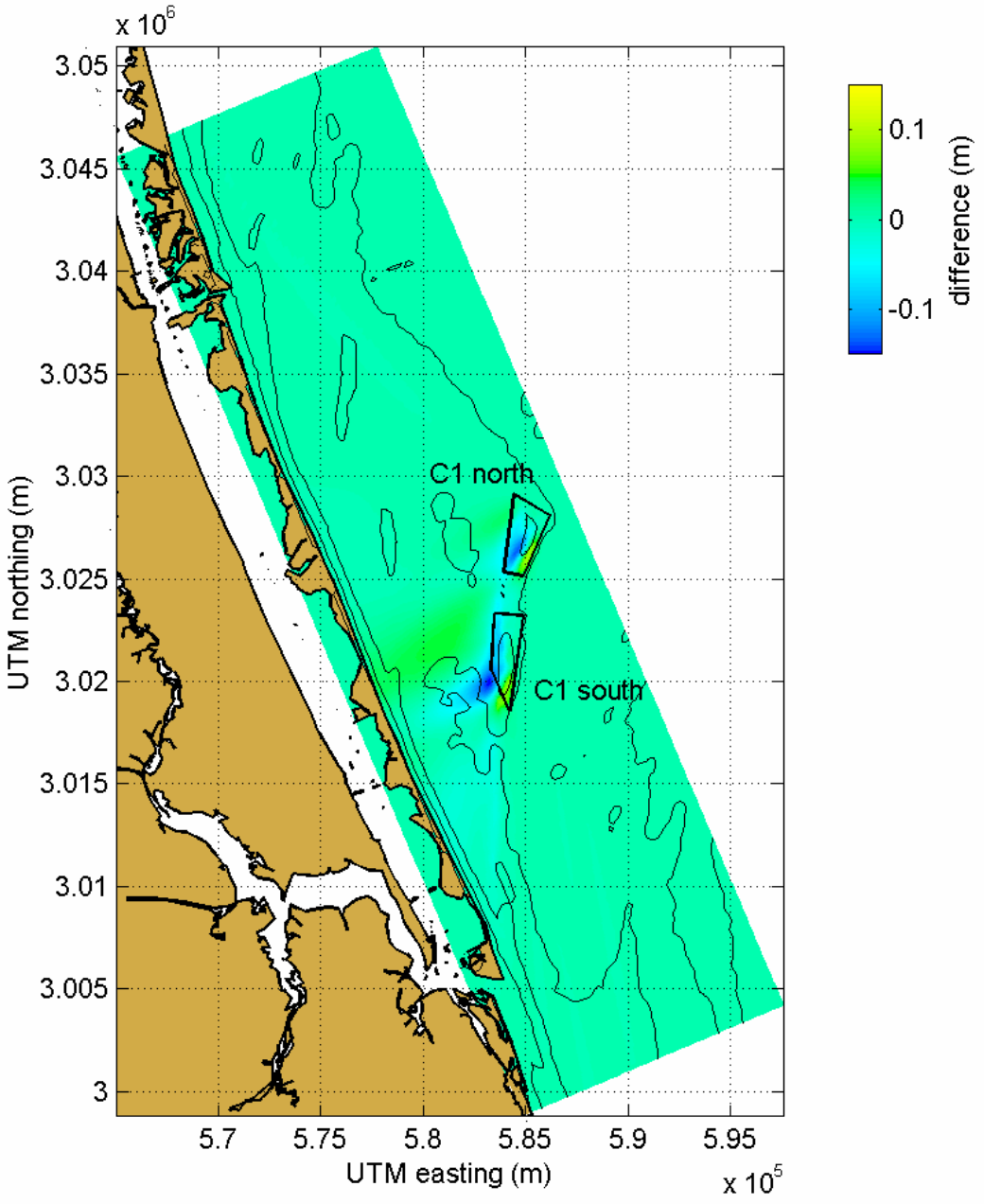

Figure C2-19. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 2C (H_s = 1.5 m, T_{peak} = 7.5 sec, θ_{peak} = 47 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

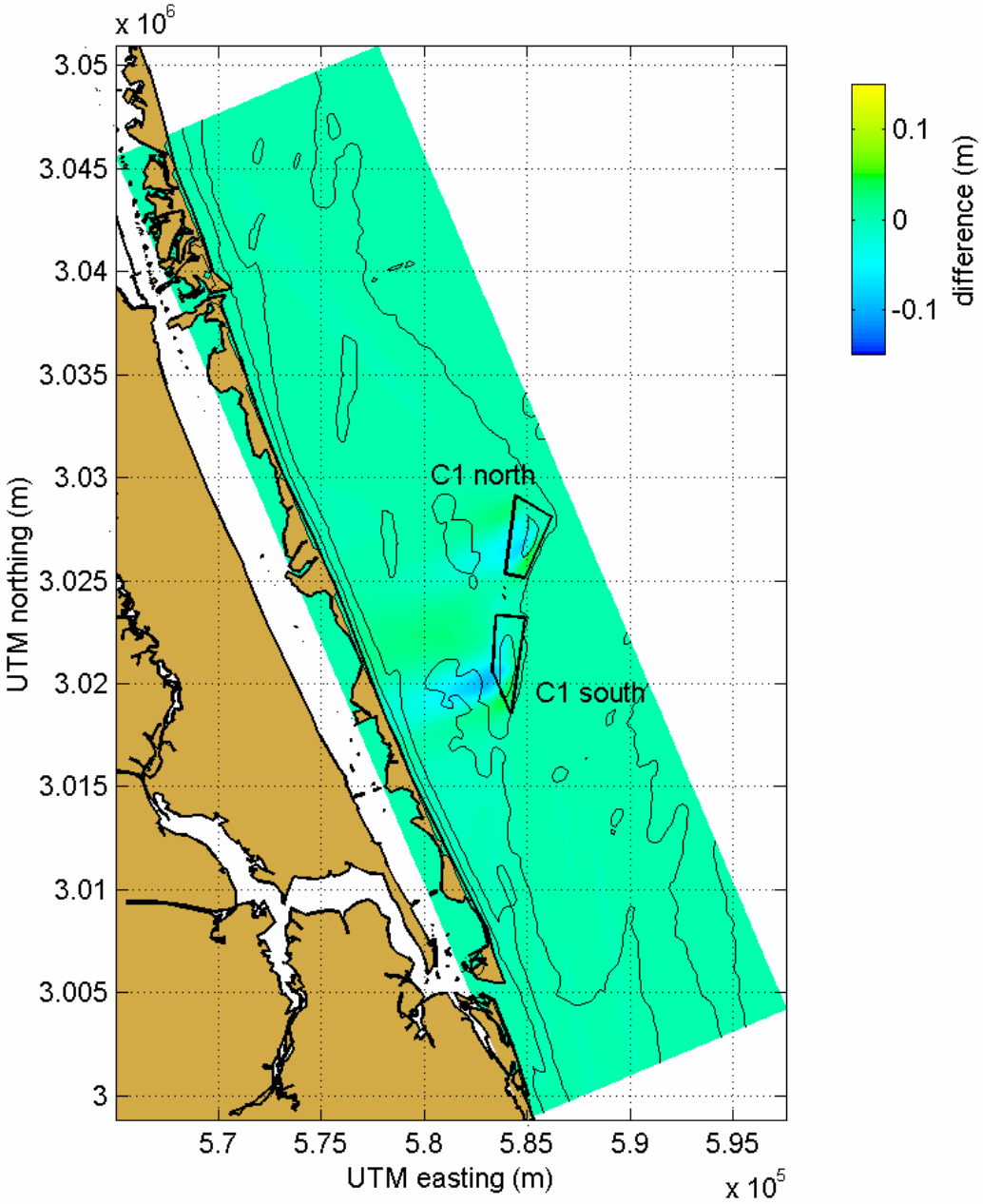

Figure C2-20. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 3C (H_s = 1.5 m, T_{peak} = 7.5 sec, θ_{peak} = 47 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

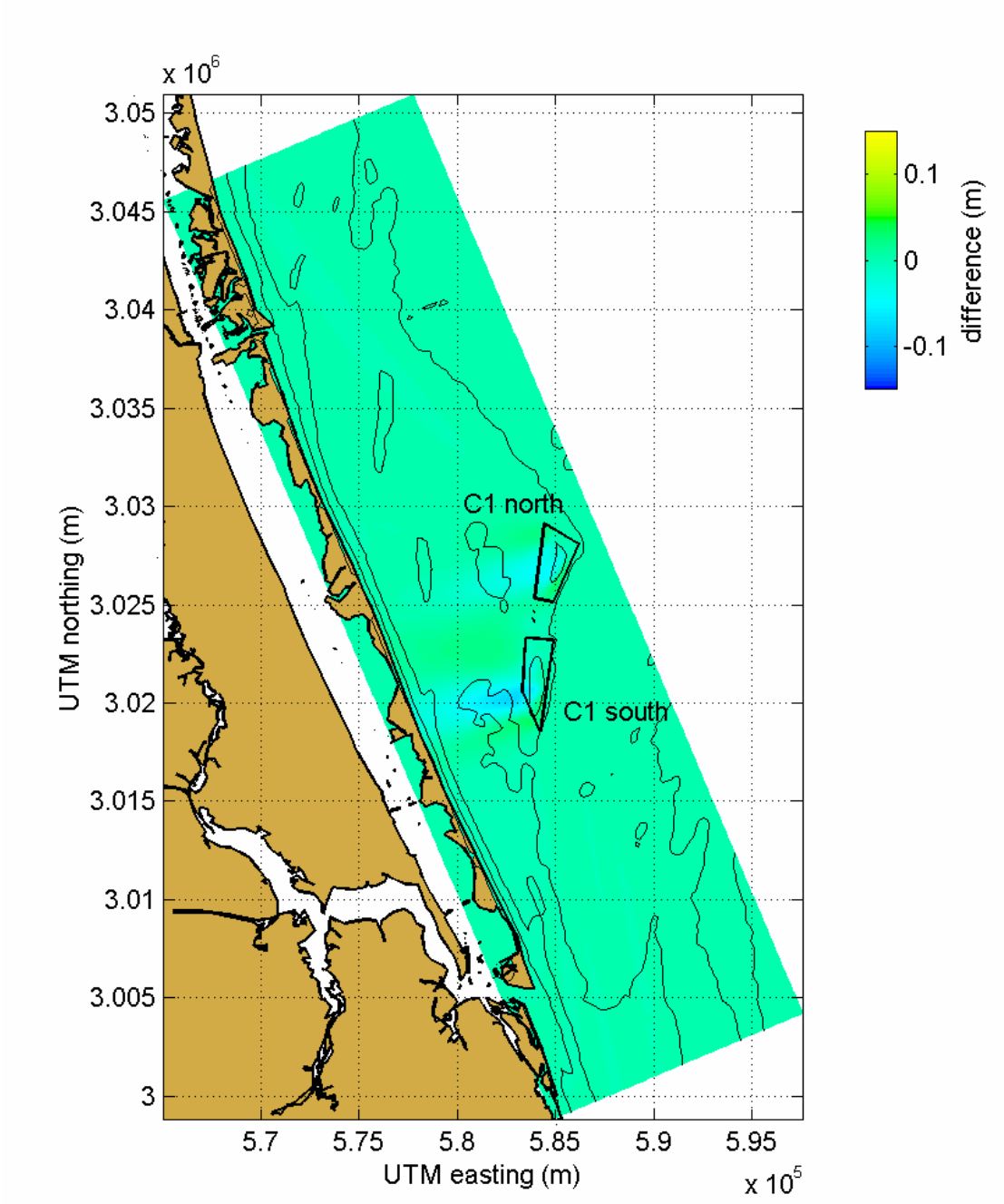

Figure C2-21. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 4C (H_s = 1.2 m, T_{peak} = 7.4 sec, θ_{peak} = 67 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

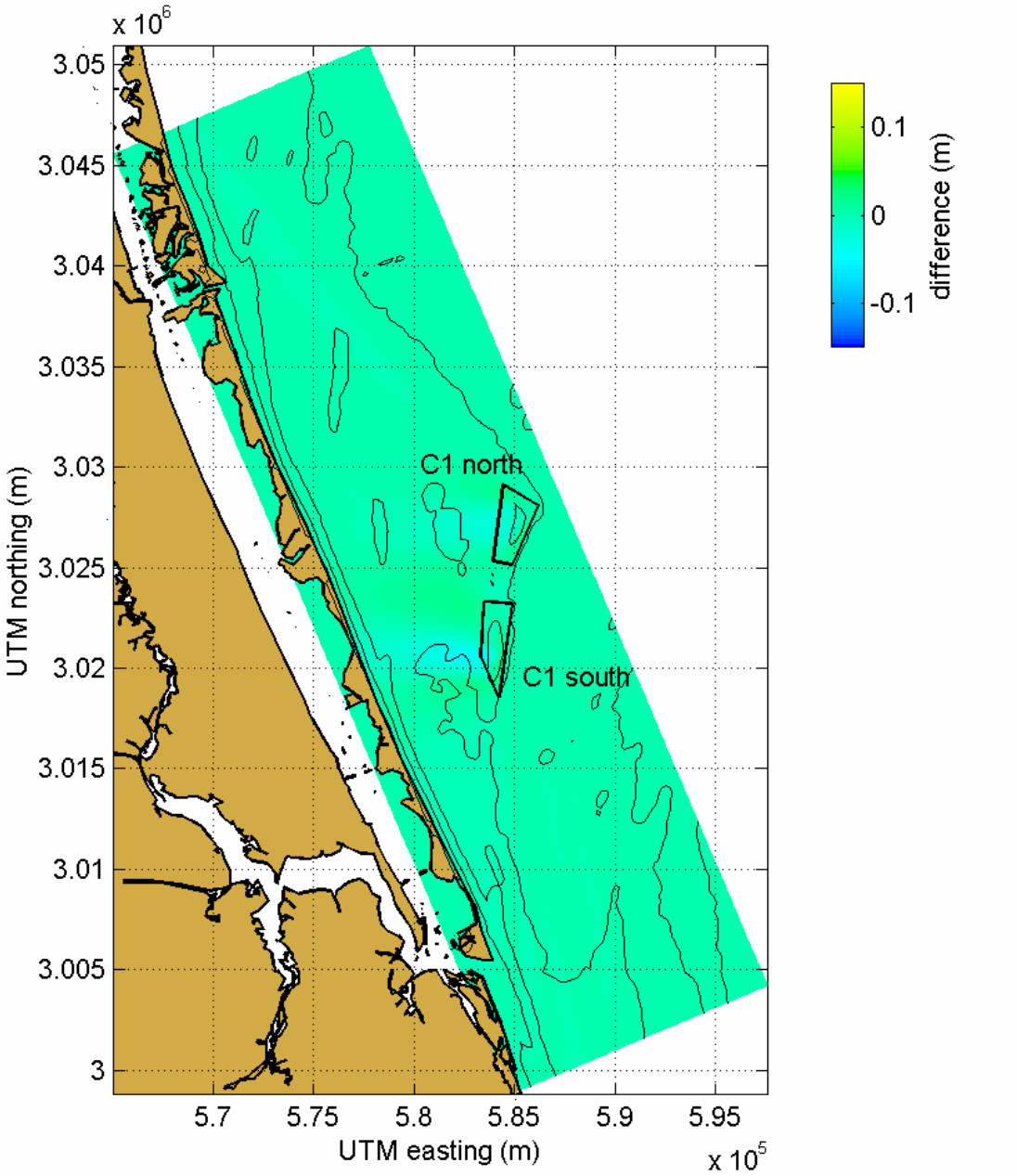

Figure C2-22. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 5C (H_s = 1.0 m, T_{peak} = 6.9 sec, θ_{peak} = 87 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

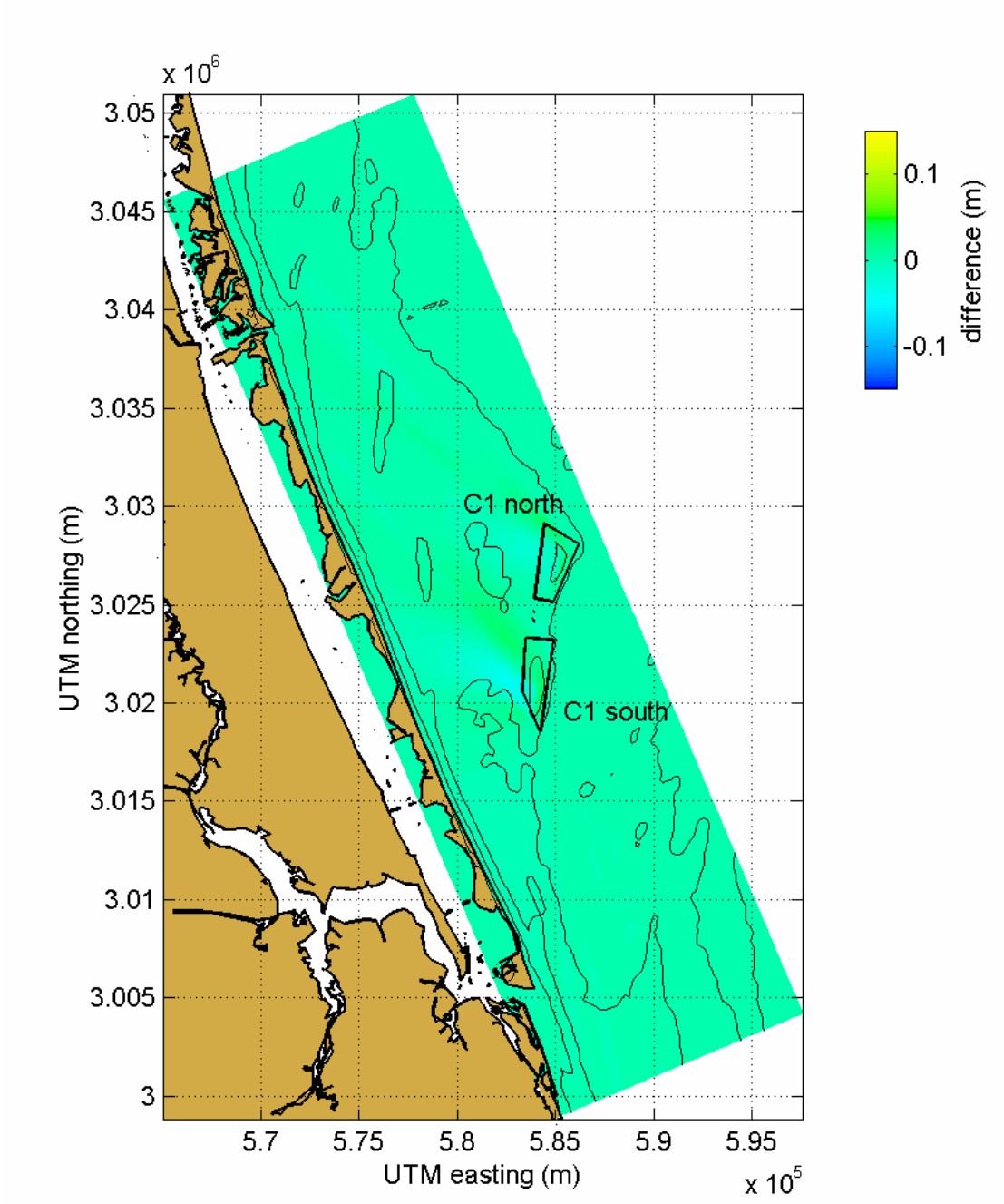

Figure C2-23. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 6C (H_s = 1.1 m, T_{peak} = 5.4 sec, θ_{peak} = 107 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

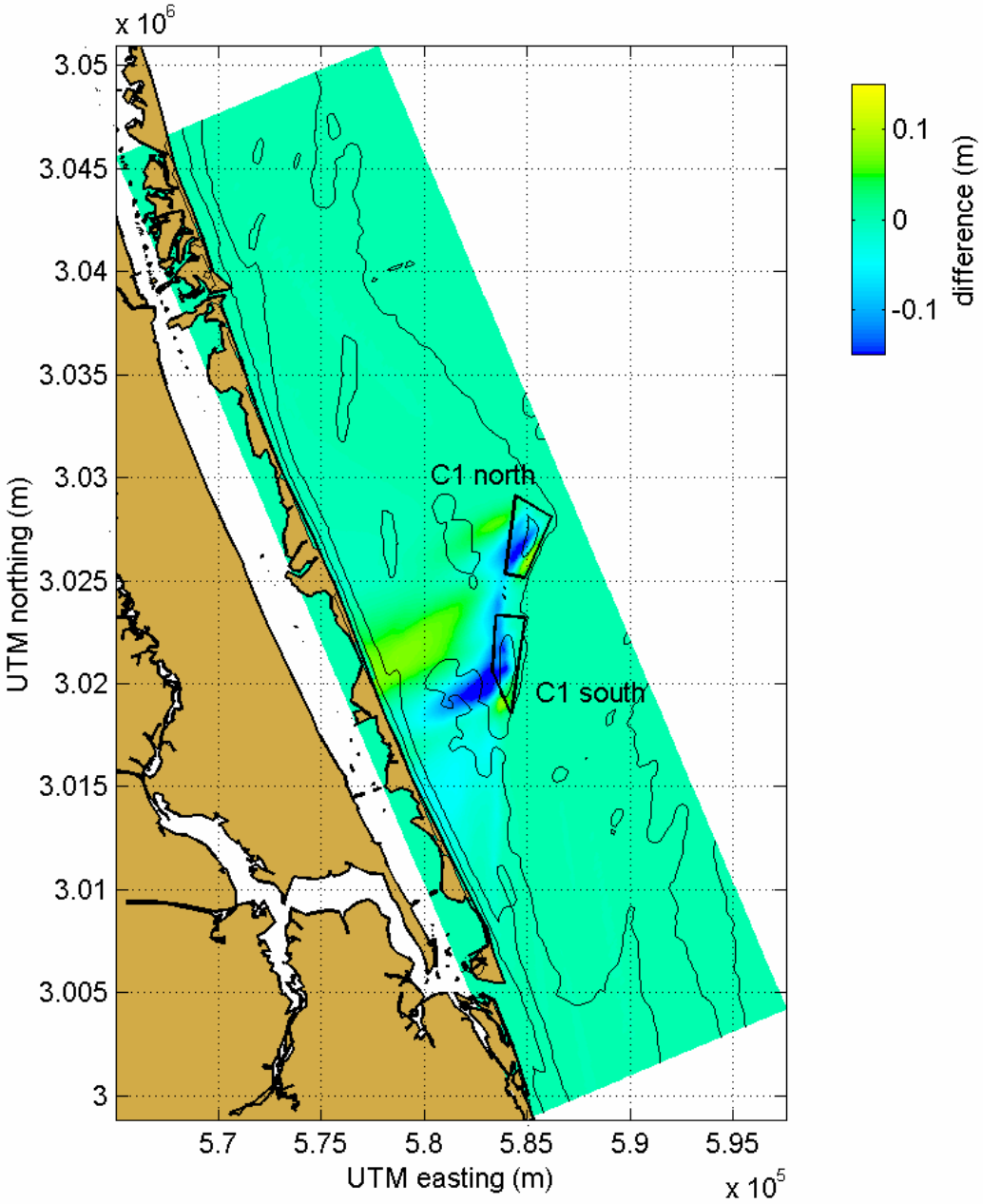

Figure C2-24. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 7C (H_s = 1.4 m, T_{peak} = 12.3 sec, θ_{peak} = 52 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

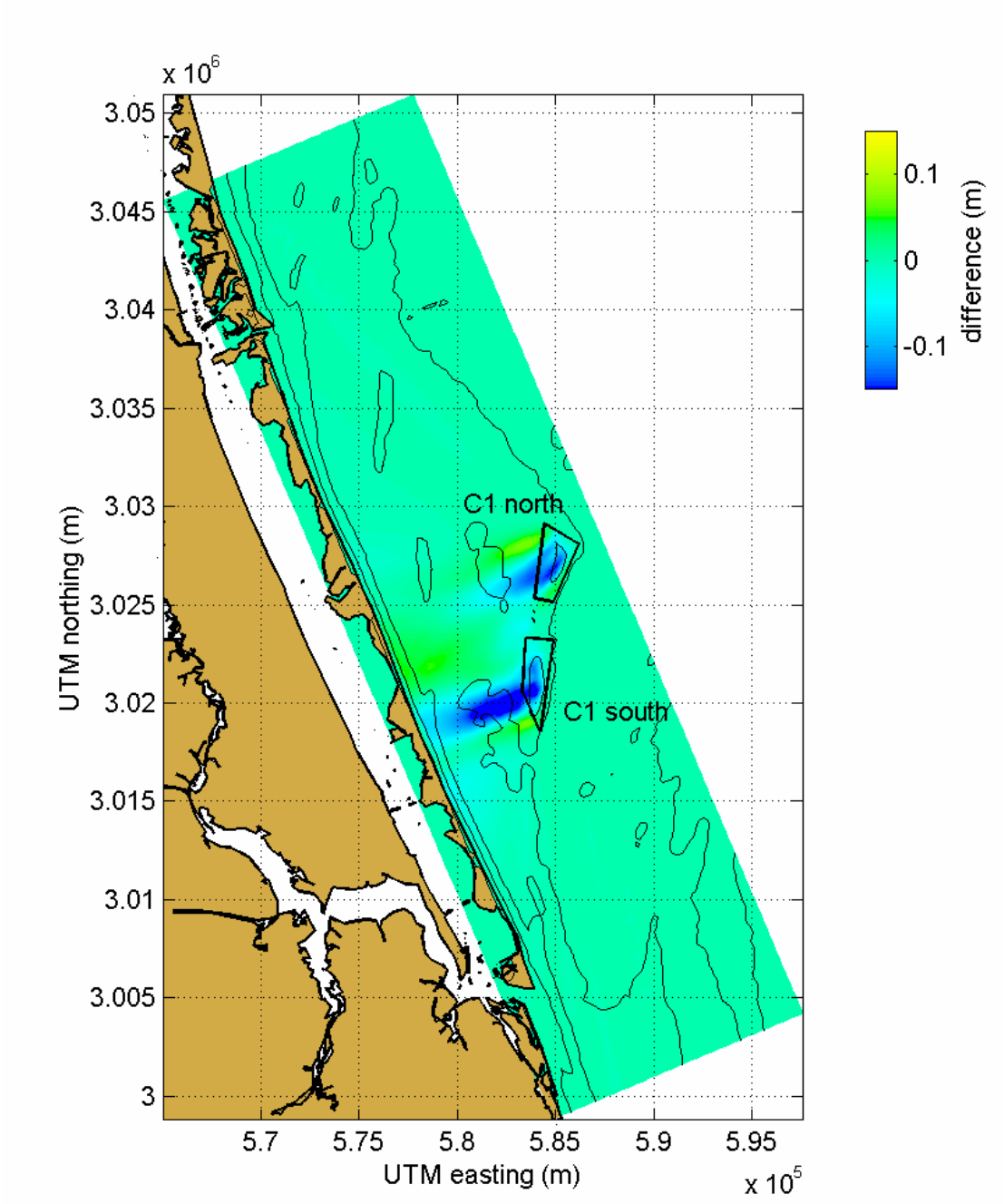

Figure C2-25. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 8C (H_s = 1.5 m, T_{peak} = 14.0 sec, θ_{peak} = 62 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

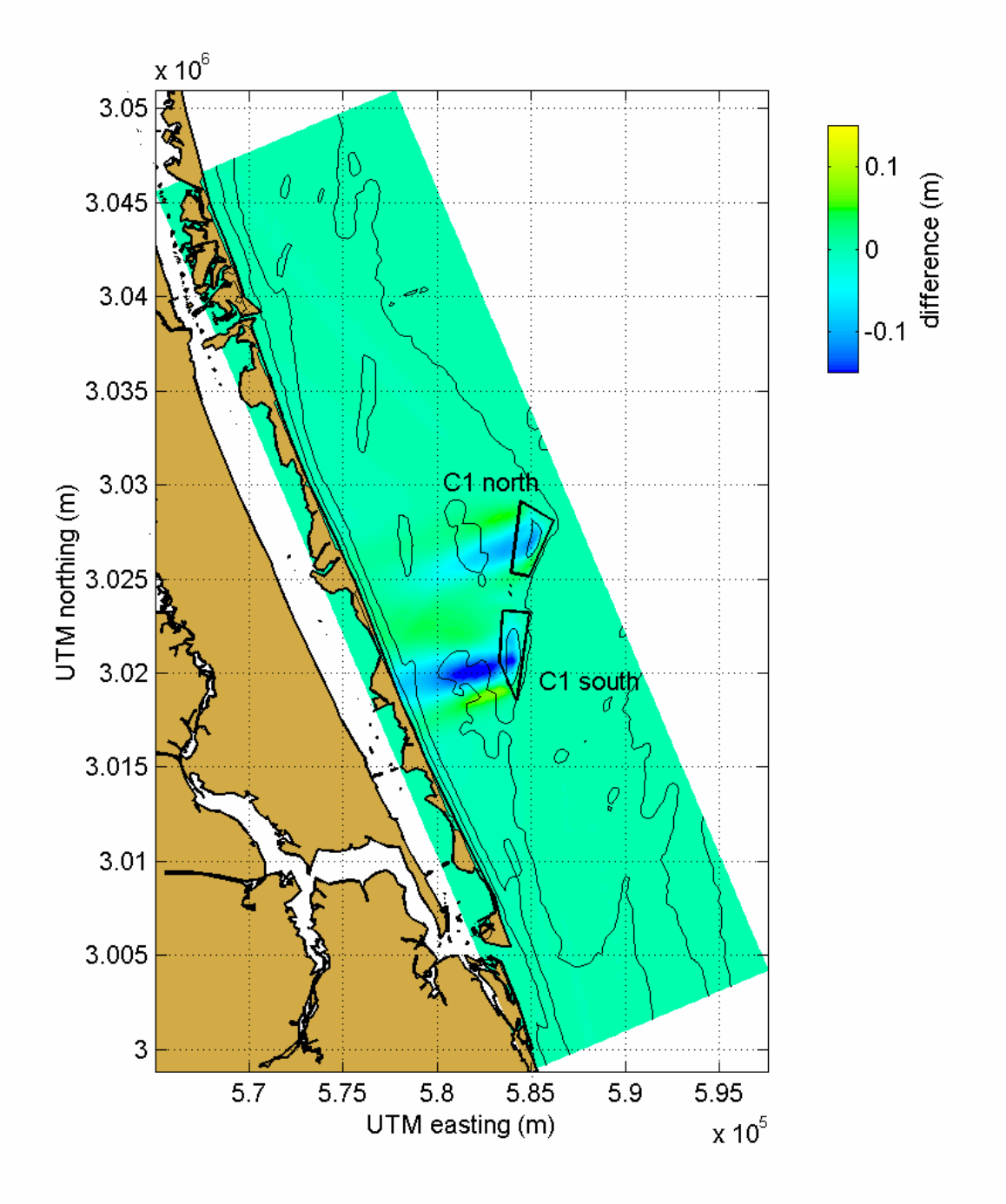

Figure C2-26. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 9C (H_s = 1.4 m, T_{peak} = 12.1 sec, θ_{peak} = 67 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

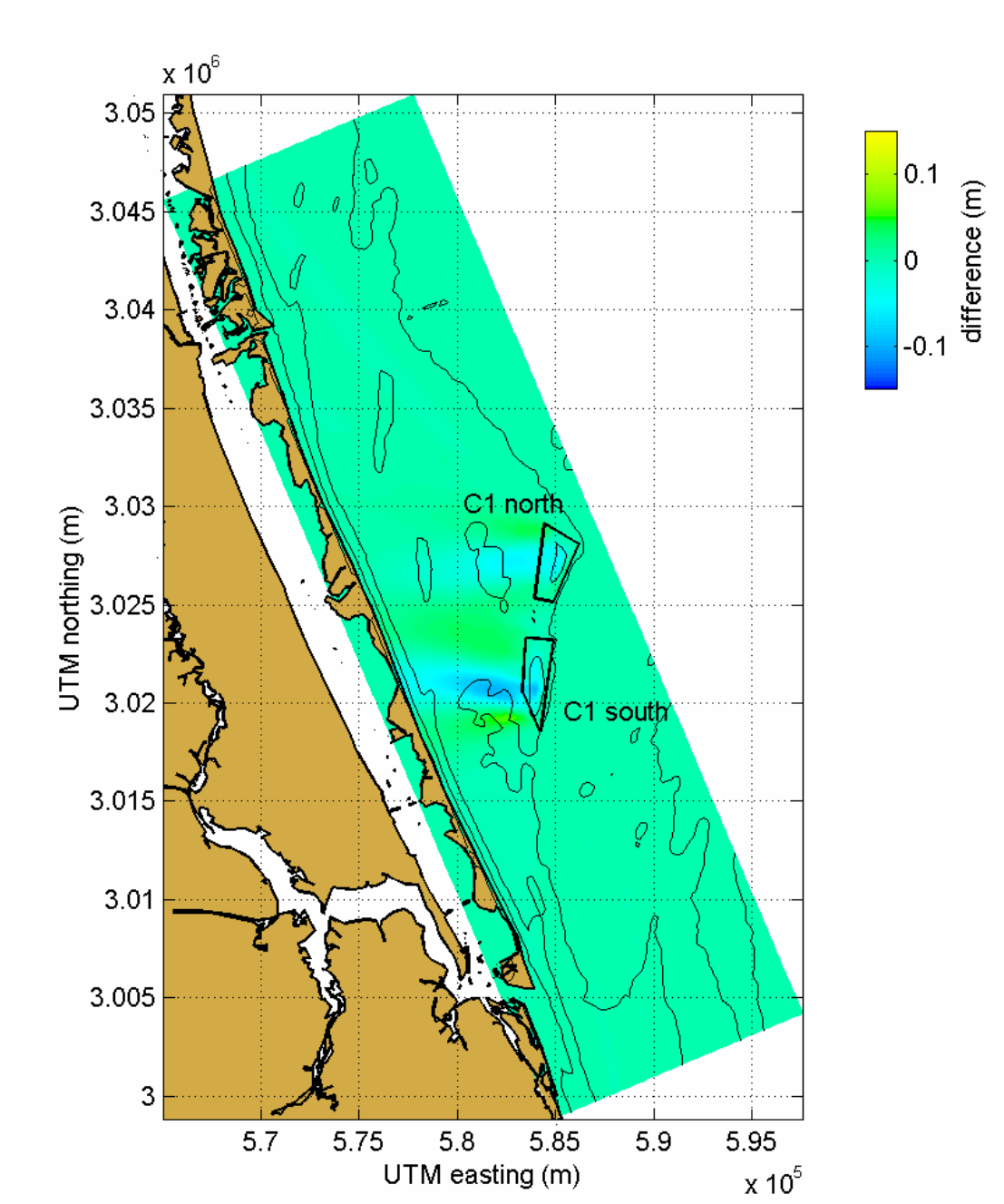

Figure C2-27. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow sites in Area C, wave Case 10C (H_s = 1.1 m, T_{peak} = 11.1 sec, θ_{peak} = 87 deg), with borrow sites C1 north and C1 south. Color contours indicate differences in wave height.

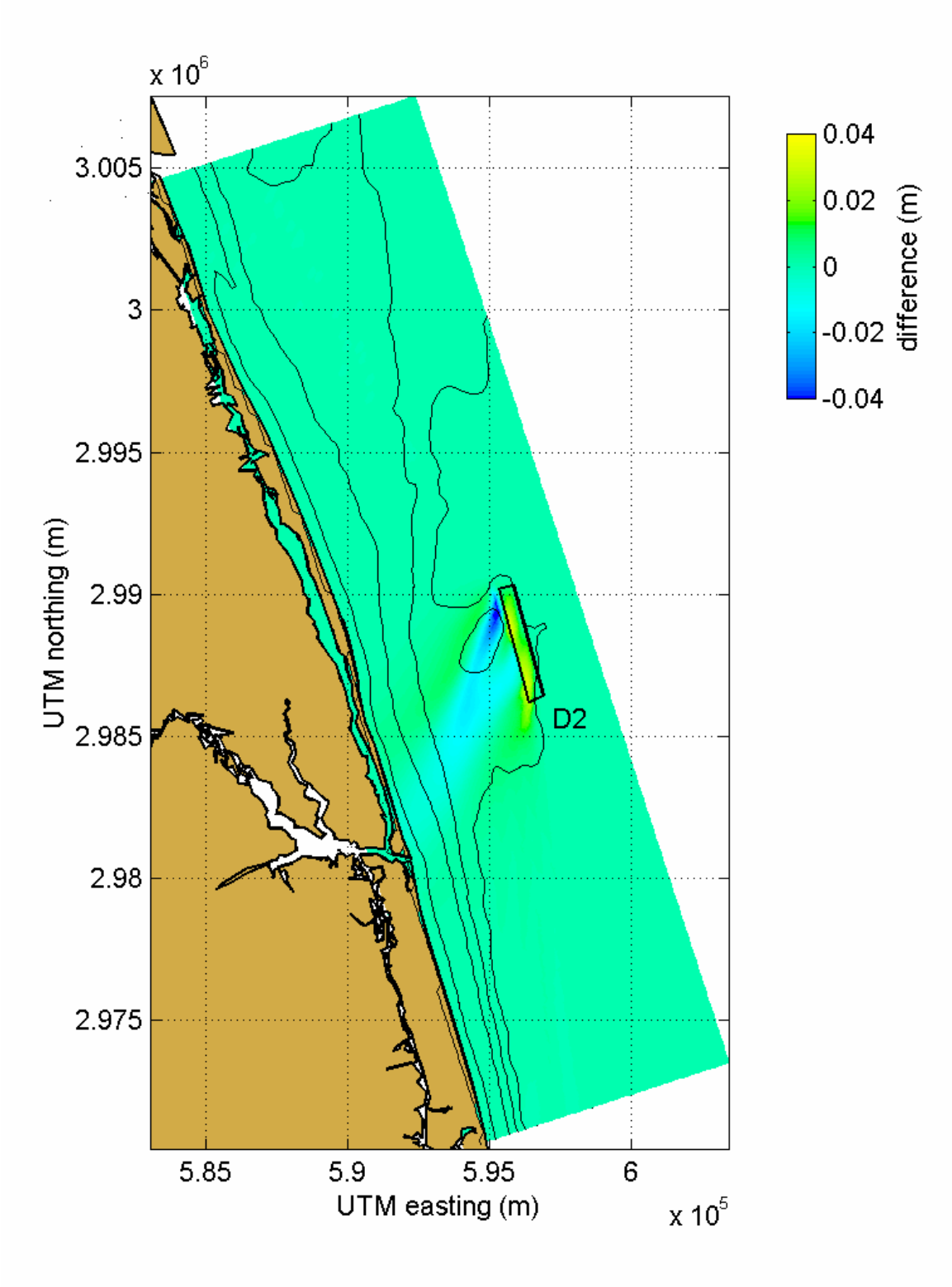

Figure C2-28. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 1D (H_s = 1.4 m, T_{peak} = 6.9 sec, θ_{peak} = 32 deg), with borrow site D2. Color contours indicate differences in wave height.

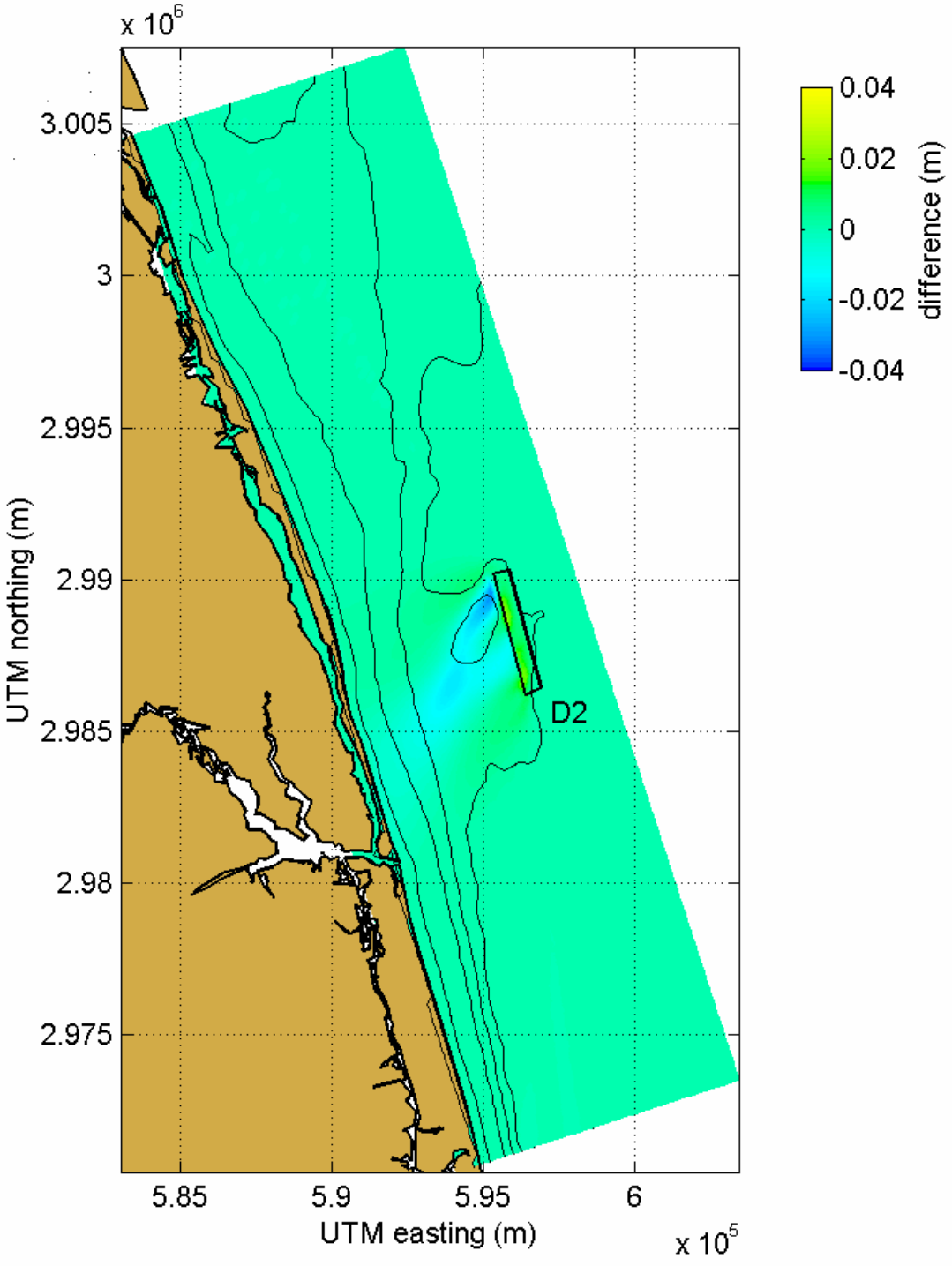

Figure C2-29. Wave height change between existing and post-dredging (Δ = H_{post}-$H_{existing}$) conditions for the borrow site in Area D, wave Case 2D (H_s = 1.3 m, T_{peak} = 7.4 sec, θ_{peak} = 47 deg), with borrow site D2. Color contours indicate differences in wave height.

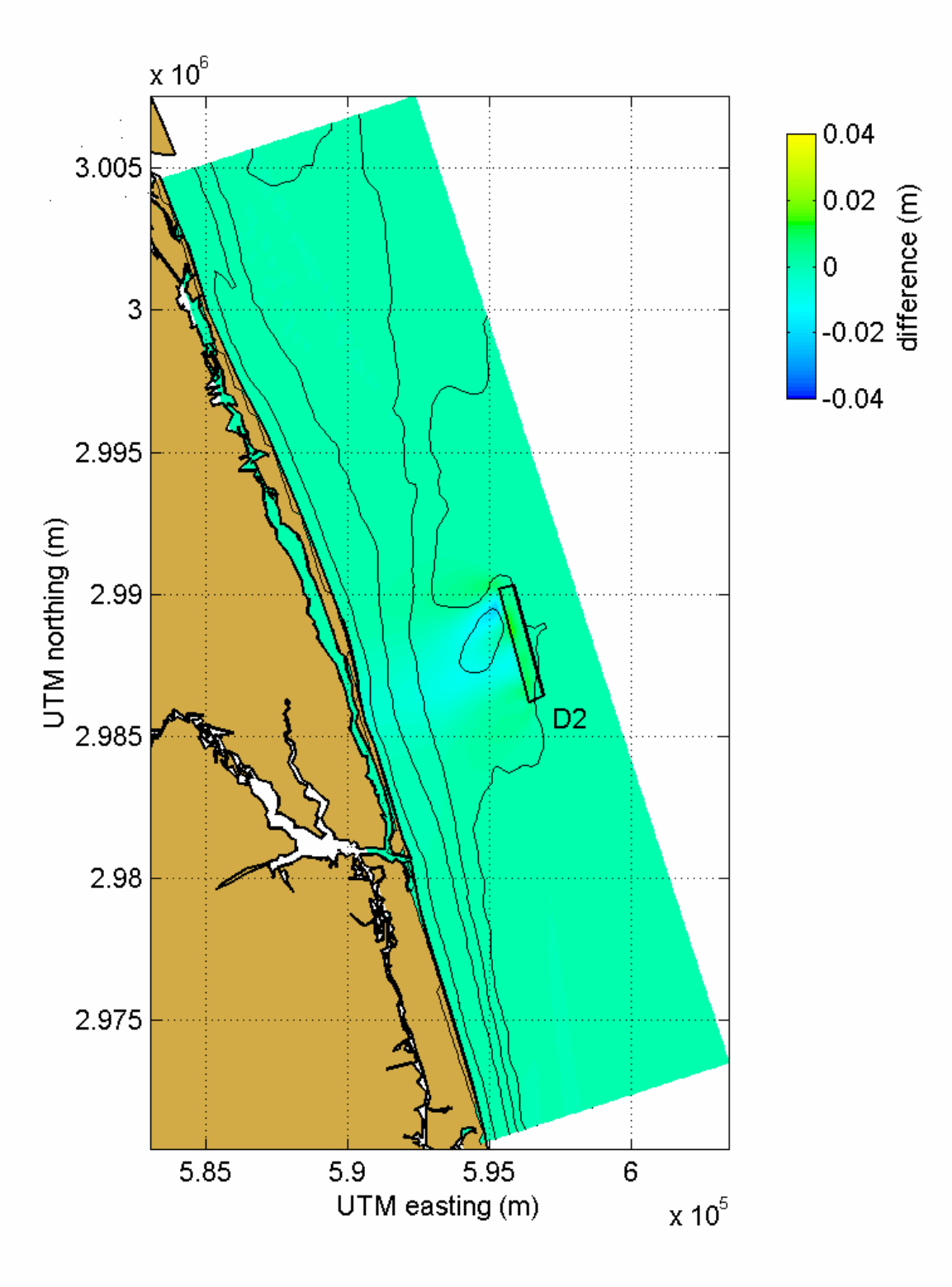

Figure C2-30. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 3D (H_s = 1.2 m, T_{peak} = 7.3 sec, θ_{peak} = 67 deg), with borrow site D2. Color contours indicate differences in wave height.

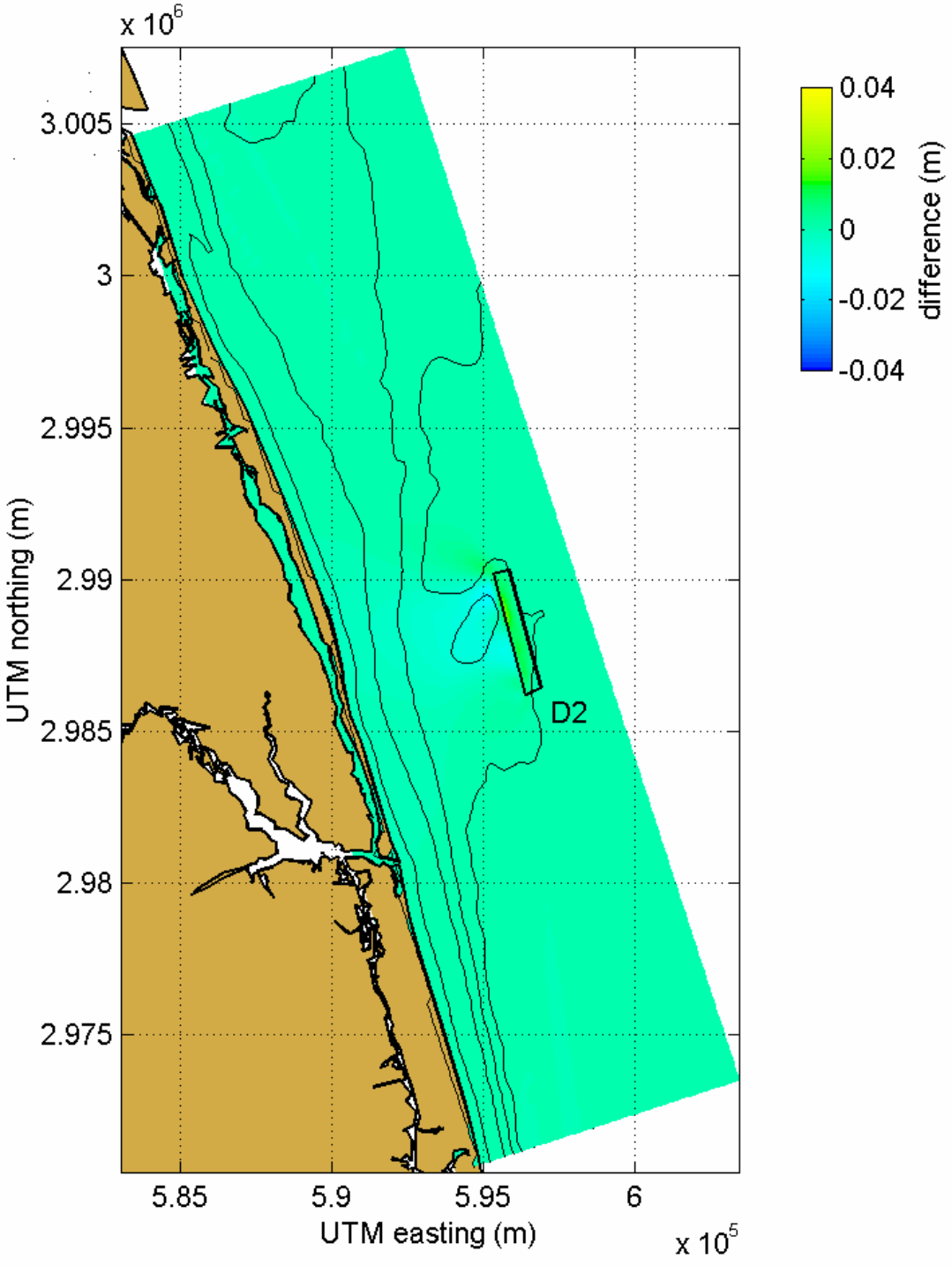

Figure C2-31. Wave height change between existing and post-dredging (Δ = H_{post}-$H_{existing}$) conditions for the borrow site in Area D, wave Case 4D (H_s = 1.3 m, T_{peak} = 5.8 sec, θ_{peak} = 77 deg), with borrow site D2. Color contours indicate differences in wave height.

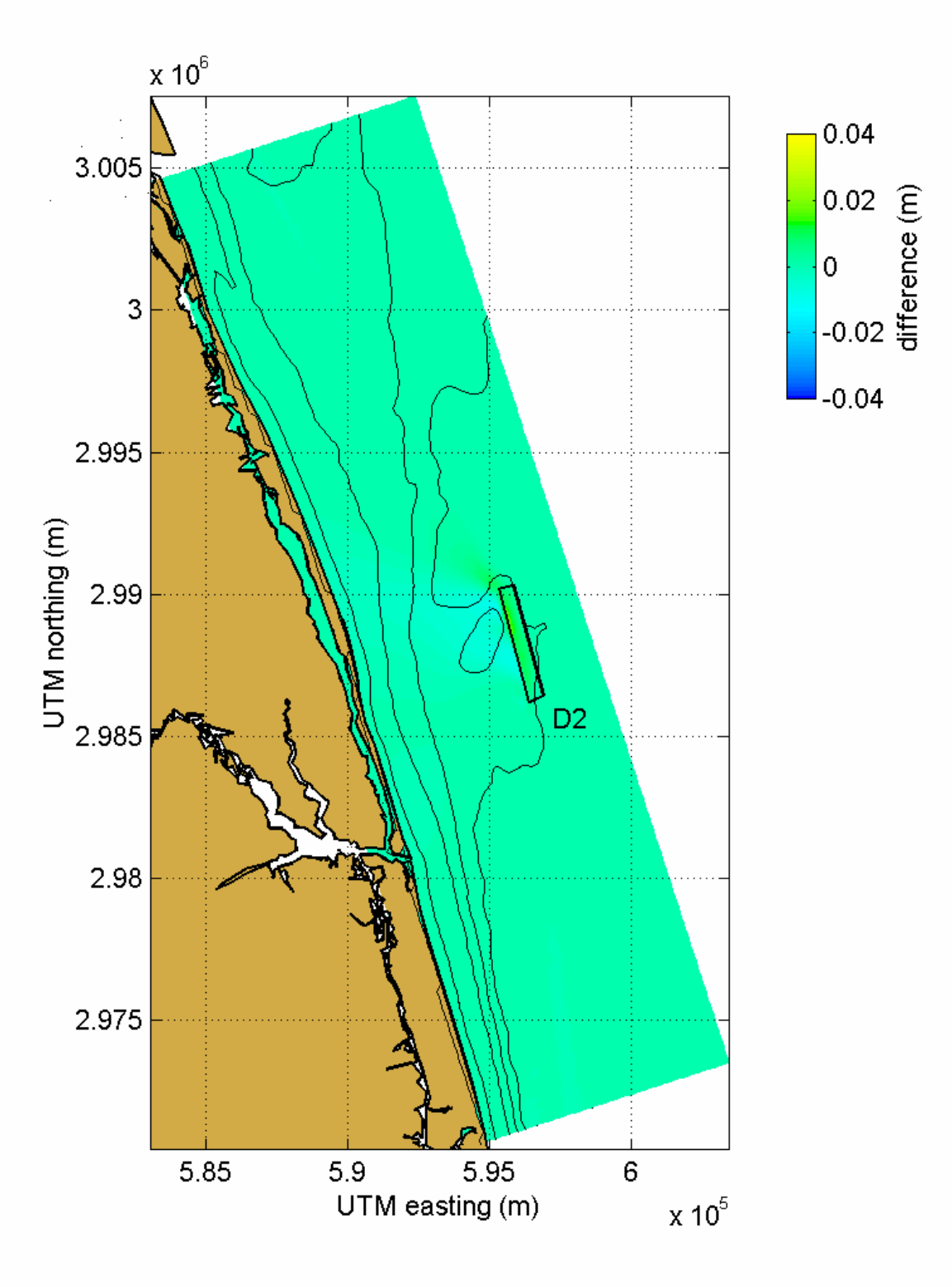

Figure C2-32. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 5D (H_s = 1.2 m, T_{peak} = 5.5 sec, θ_{peak} = 92 deg), with borrow site D2. Color contours indicate differences in wave height.

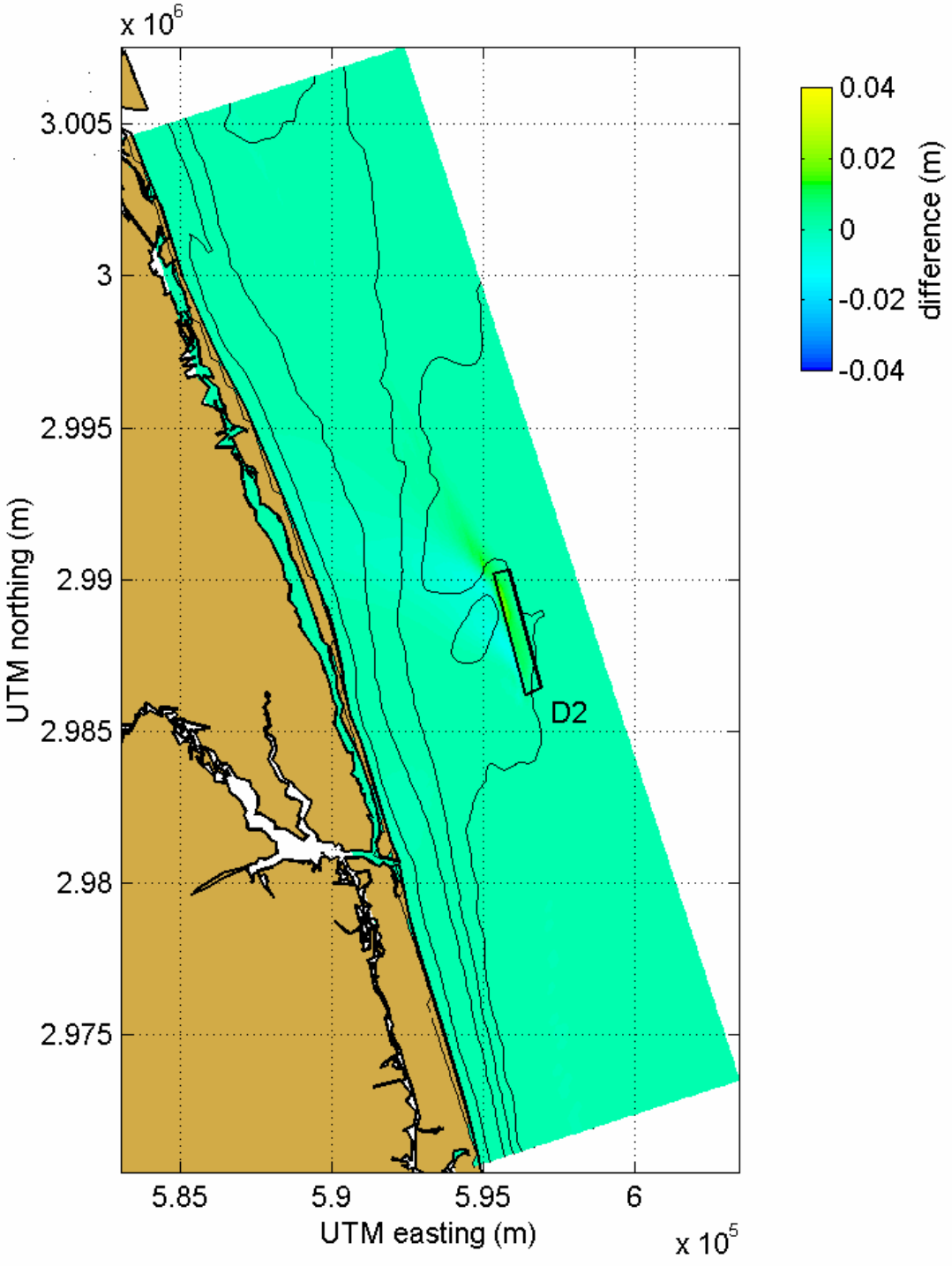

Figure C2-33. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 6D (H_s = 1.1 m, T_{peak} = 4.9 sec, θ_{peak} = 117 deg), with borrow site D2. Color contours indicate differences in wave height.

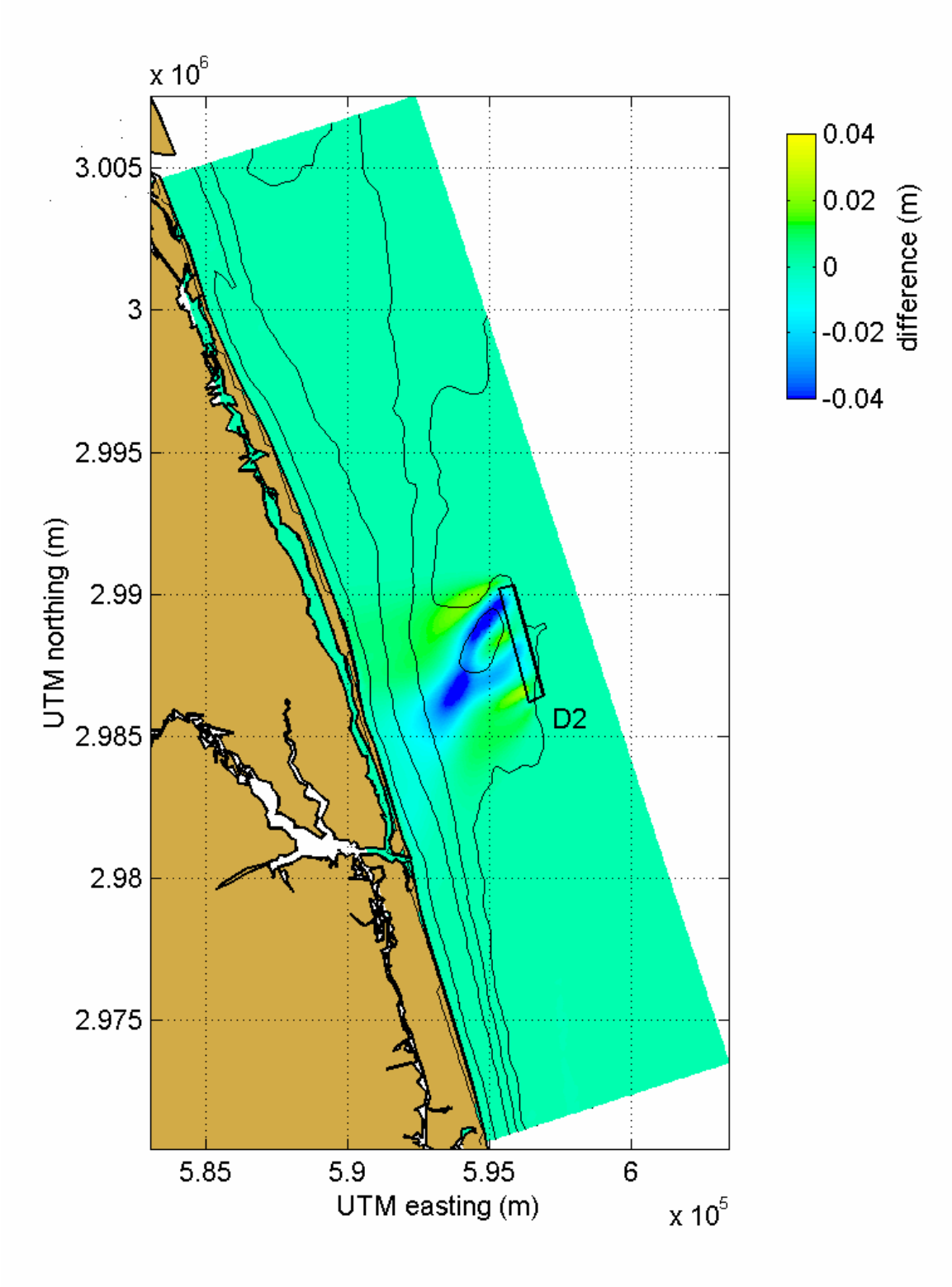

Figure C2-34. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 7D (H_s = 1.3 m, T_{peak} = 12.9 sec, θ_{peak} = 75 deg), with borrow site D2. Color contours indicate differences in wave height.

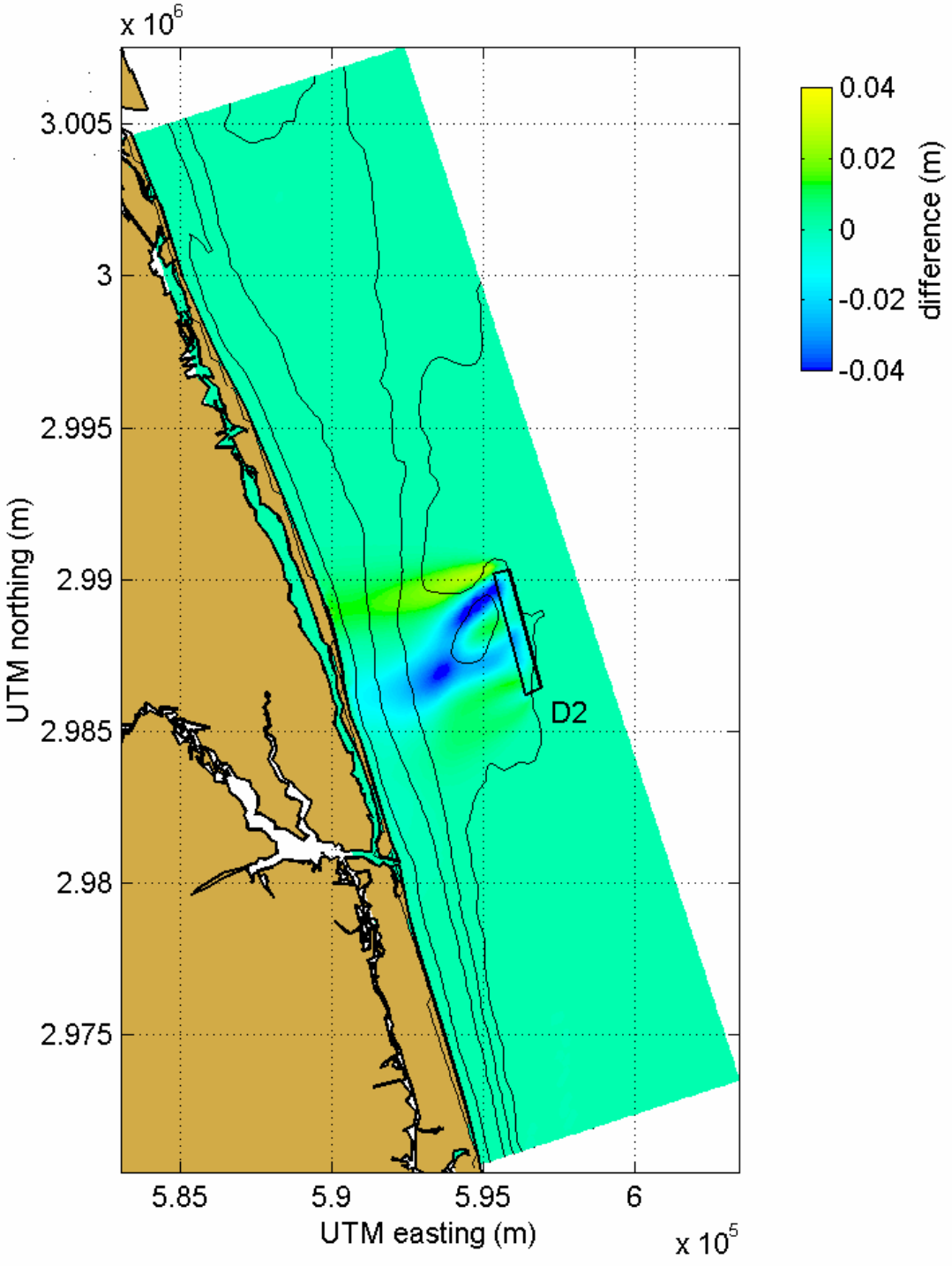

Figure C2-35. Wave height change between existing and post-dredging ($\Delta = H_{post}$-$H_{existing}$) conditions for the borrow site in Area D, wave Case 9D (H_s = 1.3 m, T_{peak} = 13.0 sec, θ_{peak} = 62 deg), with borrow site D2. Color contours indicate differences in wave height.